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## ABSTRACT

This report summarizes the mathematical and pedagogical content of the 230 programs in the SQUARE ONE TV library after five seasons of production, relating that content to the three goals of the series: (1) to promote positive attitudes toward, and enthusiasm for, mathematics; (2) to encourage the use and application of problem-solving processes; and (3) to present sound mathematical content in an interesting, accessible, and meaningful manner. The report describes the mathematical content covered in the shows and an analysis of the 76 segments added during the fifth season. Results of the content analysis indicate that for the entire collection of segments 81% satisfy one or more of the criteria for Goal 1, 58% exhibit at least one of the three stages of problem solving of Goal 2, and 90% of the segments address Goal 3 by incorporating one or more of the series' seven mathematical areas: numbers and counting; arithmetic or rational numbers; measurement; numerical functions and relations; combinatorics; statistics and probability; and geometry. Five appendices, making up the remainder and majority of the report, contain a description of the coding of segments, complete statements of the program's goals, a list of the 230 shows, further details of segment analyses related to Goals 2 and 3, and rundowns of the fifth season's shows. (MDH)

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SQUARE ONE TV CONTENT ANALYSIS: FINAL REPORT  
(INCLUDING SEASON FIVE SHOW RUNDOWNS)

January 31, 1993

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## EXECUTIVE SUMMARY

This report summarizes the mathematical and pedagogical content of the SQUARE ONE TV library after five seasons of production, relating that content to the three goals of the series. It also provides a rundown of the shows, with a complete specification of each segment's show number, content, description, format, length, and other information.

The goals of the series are these:

- I. to promote positive attitudes toward, and enthusiasm for, mathematics;
- II. to encourage the use and application of problem-solving processes; and
- III. to present sound mathematical content in an interesting, accessible, and meaningful manner.

The report includes a detailed elaboration of the goals.

Goal I. 81% of the segments of the series address Goal I by explicitly showing mathematics to be a powerful and widely applicable tool or an aesthetically pleasing subject; or by showing that it can be understood, used, and even invented, by non-specialists.

Goal II. Of the 800 problem-solving segments that appear in the course of the 230 shows, almost all address Goal II by explicitly illustrating the formulation or treatment of problems. Moreover, 83% model the use of at least one problem-solving heuristic, and 45% incorporate the important stage of problem follow-up (by looking for alternative solutions or extending to related problems, for example).

Goal III. 90% of the segments address Goal III by incorporating one or more of the series' seven mathematical areas (numbers and counting; arithmetic of rational numbers; measurement; numerical functions and relations; combinatorics; statistics and probability; and geometry). 63% involve more than one mathematical topic, thus reinforcing interrelations among mathematical concepts.

SQUARE ONE TV CONTENT ANALYSIS: FINAL REPORT  
(INCLUDING SEASON FIVE SHOW RUNDOWNS)

Square One TV is a television series about mathematics produced by the Children's Television Workshop. Its main audience is children voluntarily watching at home. Non-commercial stations broadcast its half-hour programs five days each week, Monday through Friday, usually late in the afternoon, after school. Square One TV follows the magazine format, that is, each program comprises a number of independent segments ranging in length from 10 seconds to 10 minutes. Within this format, the approach is to parody television broadcasting practices and conventions. A segment may be a parody of any of the programs and devices typical of the commercial channels: situation comedy, detective drama, music video, game show, news programming, commercial interruption, self-promotion, and so on.

Square One was produced between July 1984 and December 1992. The series premiered in January 1987 and continues to be broadcast as of this writing. SQUARE ONE has the potential for use not only in open-circuit broadcast, but also as non-broadcast video in several venues. To facilitate such use, we have analyzed every segment of the 230 shows of the series in terms of the three goals for the series. The results of the analysis reside in a comprehensive computer database. Aside from the obvious uses of this information as a guide during continued

production, the data have been helpful in several other ways.

For example:

- o The CTW School Services Department produces teachers' guides and program guides that include rundowns of the shows with an index to the series' goals. Several school-market projects with outside publishers and distributors required the development of lists of segments according to special constraints. In each case, the database facilitated the work, and we anticipate that it will be equally helpful as we build a school version of Square One from the library.
- o Our detailed knowledge of the relations of the segments to goals<sup>1</sup> has been useful in the design of our in-house summative research program, as well as the several externally funded research programs that employ elements of the series.
- o One can easily compare the content of SQUARE ONE TV with other resources in mathematics education--for example, scope-and-sequence charts of mathematics curricula and local district mathematics programs. We have provided tailored reports to instructional television program coordinators at Public Broadcasting System (PBS) affiliates and to several school districts.

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1. Documentation of our method of coding is available in: McNeal, B. & Singer, K. (1991). Square One TV Coding of Segments. New York: Children's Television Workshop. A copy of this report is included here as Appendix A.

- o As the CTW International Division continues to license Square One for broadcast in other countries, the database has been useful in developing rundowns responsive to local constraints. For example, in Australia, segments featuring of English standard units of measurement had to be replaced. The database was invaluable in constructing a library for international co-productions, the first of which was conducted with the British Broadcasting Corporation Schools Division and resulted in 20 programmes.

This report describes the content of the 230 programs of the SQUARE ONE TV library in terms of its elaborated goal statement (Appendix B). Charts and graphs show the cumulative treatment of objectives for the series' goals. Rundowns of the 35 programs of Season V (Appendix E) include descriptions of each segment of each program. This report should be read as an update of the reports<sup>2,3,4,5</sup> on the production of Seasons I-IV. In particular, those reports include complete rundowns of the 75, 40, 40, and 40 programs of Seasons I-IV, respectively, as well as details of their content.

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2. Schneider, J., Aucoin, K., Schupack, L., Pierce, B., & Esty, E. (1987). Square One TV, Season One Content Analysis and Show Rundowns. New York: Children's Television Workshop.
  3. Schneider, J., Miller, R., & Esty, E. (1988). Square One TV, Season Two Content Analysis and Show Rundowns. New York: Children's Television Workshop.
  4. Schneider, J., Miller, R., McNeal, B., & Esty, E. (1990). Square One TV, Content Analysis and Show Rundowns through Season Three. New York: Children's Television Workshop.
  5. Schneider, J., McNeal, B., Singer, K., & Esty, E. (1991). Square One TV, Content Analysis and Show Rundowns through Season Four. New York: Children's Television Workshop.

### SQUARE ONE TV GOALS

The series has three goals:

- I. to promote positive attitudes toward, and enthusiasm for, mathematics;
- II. to encourage the use and application of problem-solving processes; and
- III. to present sound mathematical content in an interesting, accessible, and meaningful manner.

People respond to mathematical ideas if they see concepts linked to concrete situations, if the ideas appear beautiful and dynamic, or if they seem accessible to people with whom the viewer can identify. For Goal I, we reviewed each segment in terms of these three motivational criteria, recognizing only what is explicitly exhibited or expressed, not what the viewer may infer.

Goal II operates through segments that illustrate problem-solving behavior and problem-solving heuristics. For our purposes, we recognize three stages of problem-solving behavior: problem formulation, problem treatment, and problem follow-up. Of course, problem-solving is rarely linear or so simply described. Instead, a problem solver moves among the three types of behavior, applying a variety of heuristics. The coding sheet on page 4a illustrates the view of the problem-solving components that guides our analysis for Goal II. For Goal II, we analyzed only the segments that explicitly exhibit one or more of the three stages of problem solving: formulation, treatment, and

# CONTENT ANALYSIS

## GOAL I

- I Positive Attitudes and Enthusiasm:
  - A Powerful and Applicable Tool
  - B Beautiful Aesthetically Pleasing Subject
  - C Initiated, Developed, and Understood by Non-Specialist

## OTHER ANALYSIS

- Unanswered questions to viewer
- Invitation to participate
- Calculator use
- Computer use
- Mistakes made and corrected

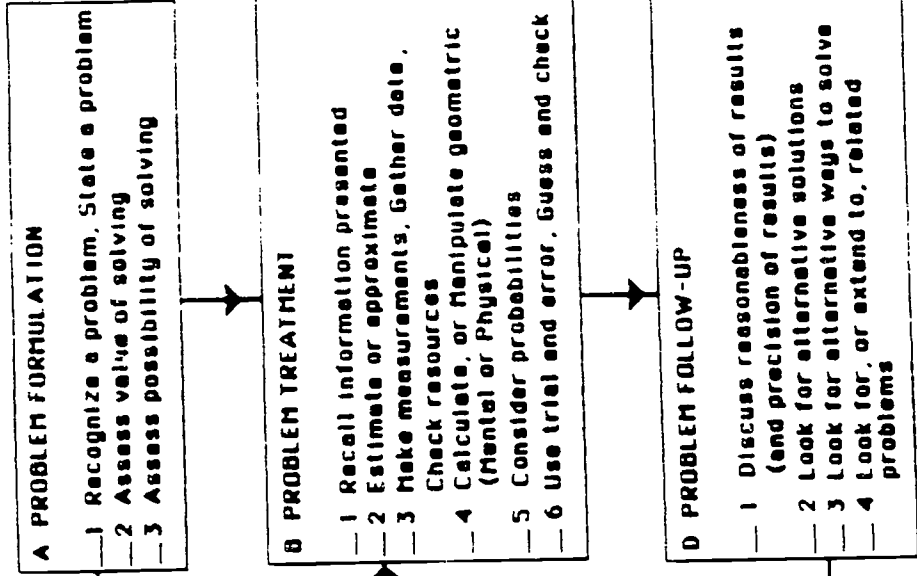
## GOAL III

- \_\_\_\_\_ Mathematics Content

PROBSOLV  
NOT PROBSOLV

## GOAL II

### ACTION



### HEURISTICS

- C1 REPRESENT PROBLEM
  - a Scale model, drawing, map
  - b Picture, Diagram, gadget
  - c Table, Chart
  - d Graph
  - e Use objects, Act out
- C2 TRANSFORM PROBLEM
  - a Rework, clarify
  - b Simplify
  - c Find subgoals, Sub problems (work backwards)
- C3 LOOK FOR
  - a Patterns
  - b Missing Info
  - c Distinctions in kinds of information pertinent, extraneous
- C4 REAPPROACH PROBLEM
  - a Change point of view, Reevaluate assumptions
  - b Generate new hypotheses

Date \_\_\_\_\_ Prod \_\_\_\_\_  
 Under \_\_\_\_\_ Title \_\_\_\_\_

follow-up. In fact, 58% of the series segments meet this criterion (cf. page 9).

Goal III involves the presentation of a broad spectrum of mathematics. We aim to provide segments with mathematics that has clear ties to school curricula and also mathematics that would extend viewers' school experience. The mathematical content of SQUARE ONE falls into seven areas:

- Numbers and Counting;
- Arithmetic of Rational Numbers;
- Measurement;
- Numerical Functions and Relations;
- Combinatorics and Counting Techniques;
- Statistics and Probability; and
- Geometry.

Appendix B includes an outline of each area as we considered it in developing program material. By using this classification of the content, we do not mean to suggest boundaries between areas. In fact, we tried to promote a sense of interconnection among areas. Most segments of the series deal with more than one area of mathematics (cf. page 11). Moreover, we make no attempt to identify a primary topic. In many cases it would be difficult to distinguish primacy, and mathematical content is often a function of the viewer's experience and perceptions. For example, to a less sophisticated viewer, But Who's Counting? may appear as a game primarily involving numeration, while a more experienced viewer may concentrate on its probabilistic aspects.

#### THE SHOWS

In terms of mathematical organization, there are two types of shows: those with a particular mathematical emphasis and

those based on a variety of mathematical topics. By definition, the former have a single topic that is the focus of segments comprising more than one-third of that show. For example, Show 413, with an emphasis on estimation, includes a studio sketch, Mathcourt 8: Rounding Down; an animation, Division Of: Estimation; and a game show, Close Call.

The remaining shows present a mixture of mathematics. However, many have a mini-emphasis: two or more segments on the same topic, but running shorter than one-third of the show. For example, Show 411 includes three pieces dealing with probability: But Who's Counting?, a question from Square One Challenge, and Division Of: Lottery. A list of the shows with their emphases, if any, appears in Appendix C.

#### ANALYSIS OF SEGMENTS

Fifth season production added 76 segments to the pool from which we assemble programs, bringing the total to 980 segments. Of these 980 segments, 373 appear more than once in the course of the 230 programs. For instance, many songs run two or three times each. Moreover, some segments appear in seasons after their production. The 230 programs of the library comprise 1341 segments, counting repeated segments. The six segment formats<sup>6,7,8</sup> occur with the following frequencies:

- 
6. A seventh segment format, the bumper, is a short (typically less than 12 seconds) segue between segments of a show. Since few of the bumpers are codable to the goals, we exclude them from the statistics.
  7. The careful reader who compares the Season I-IV statistics here with those reported in the earlier analyses will note a few small discrepancies. They result from correcting occasional errors in recording the coding.
  8. Sixty-eight segments have more than one part appearing together in a show, although separated by other segments. Multi-part segments are coded as a single segment.

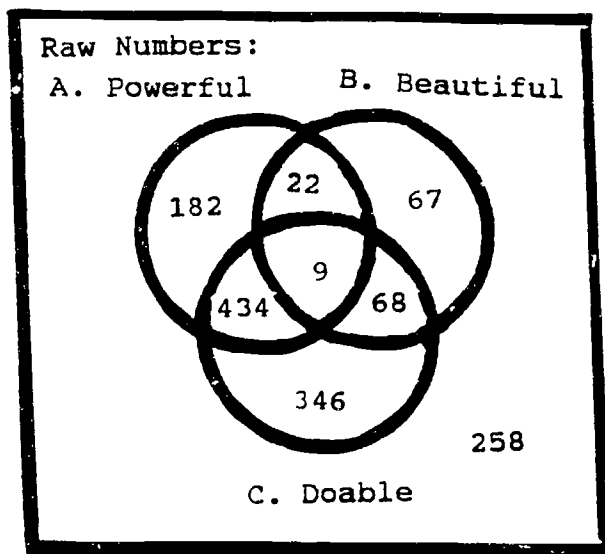
Season(shows)	I(75)	II(40)	III(40)	IV(40)	V(35)	(230)
Studio Sketch	218	44	47	38	64	411
Animation	101	92	41	44	40	318
<u>Mathnet</u> Episode	75	40	40	40	35	230
Song	83	28	21	16	13	161
Game Show	28	32	34	26	1	121
Live Action Film	37	8	25	19	11	100
Total	542	244	208	183	164	1341

The charts and graphs on the following pages relate the treatment of the goals across the segments. Two game shows, Square One Squares and Square One Challenge, have game questions that are independent and carry sufficient content to warrant coding them individually. Thus the base for the coding consists of 1386 items<sup>9</sup>.

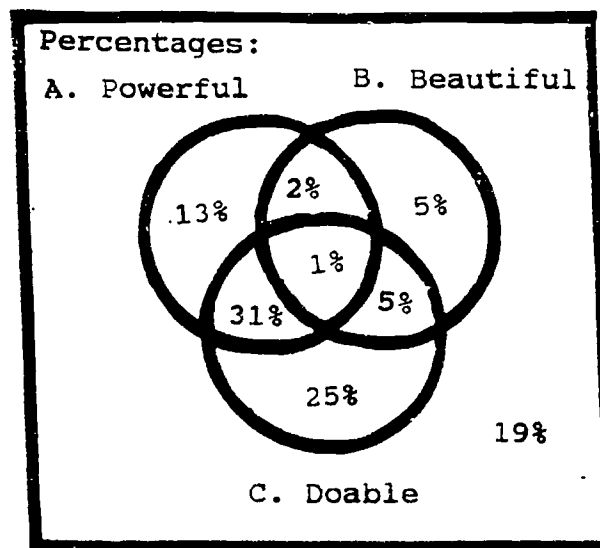
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9. From the library's 1341 segments subtract 22 episodes of the two game shows and add 67 questions.

# GOAL I TALLIES

Of the 1386 codable items in the Square One TV library, 1120 (81%) satisfy one or more of the three criteria for Goal I. The Venn diagrams below show the distribution.



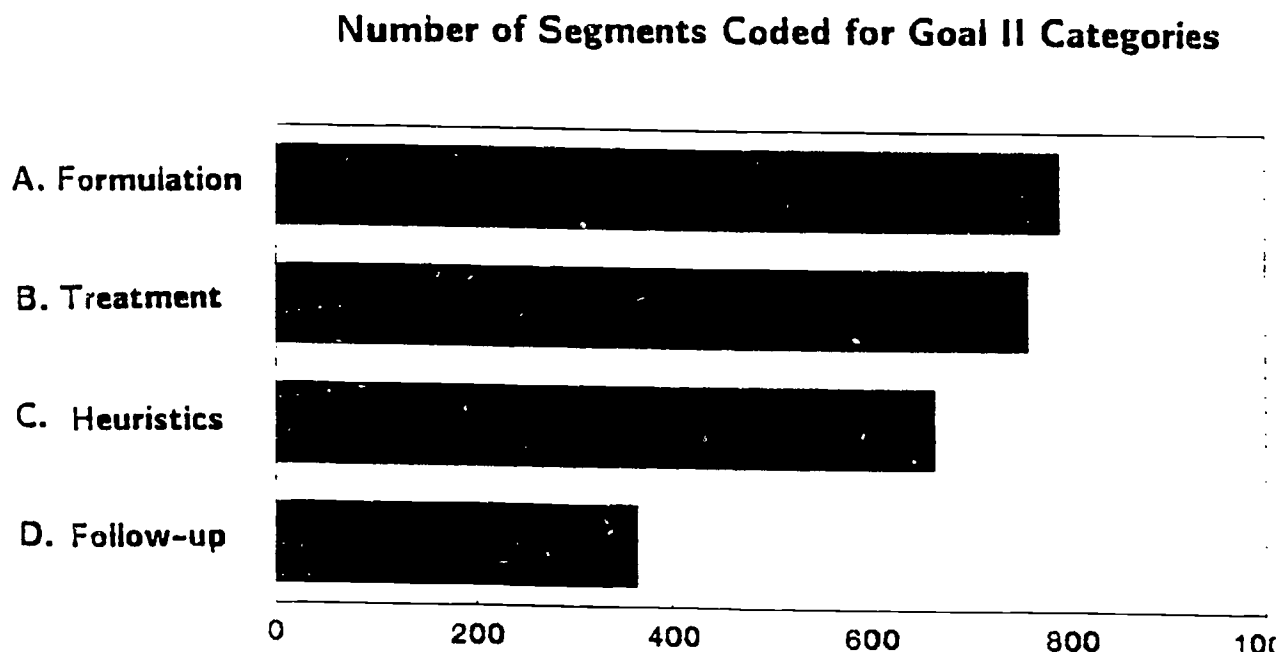
Library



Library

## GOAL II TALLIES

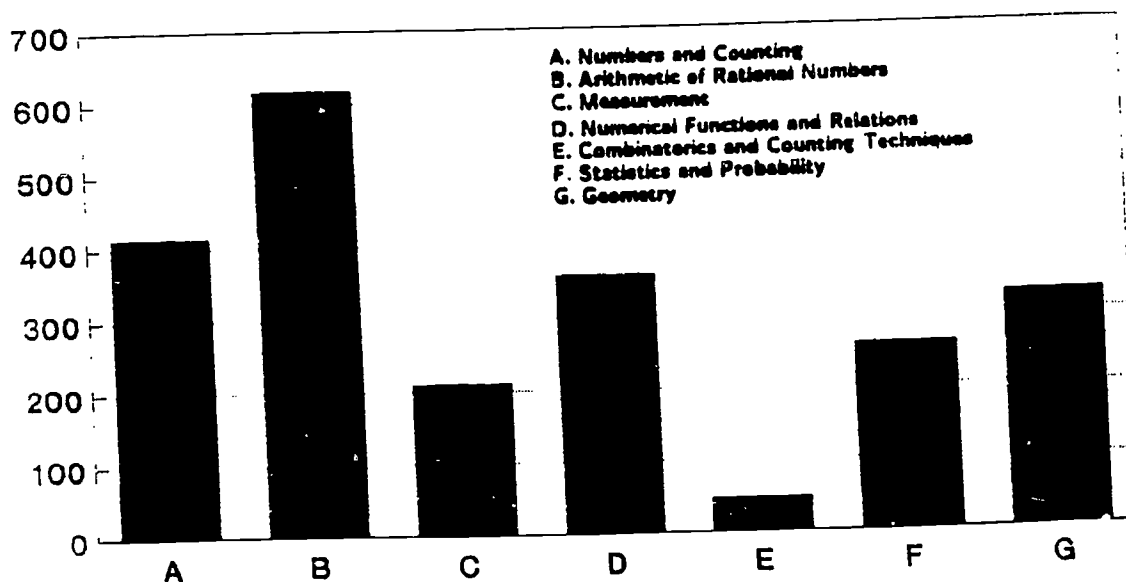
Of the library's 1386 codable items, 800 (58%) explicitly exhibit at least one of the three stages of problem solving (recall that codable items include Square One Squares and Square One Challenge questions). The bar graph below shows the number of segments among these 800 that address each of the four objectives of Goal II. Note that many items meet more than one objective. See Appendix D for a finer tally of items according to the detailed treatment of problem solving in our elaborated goal statement (Appendix B).



### GOAL III TALLIES

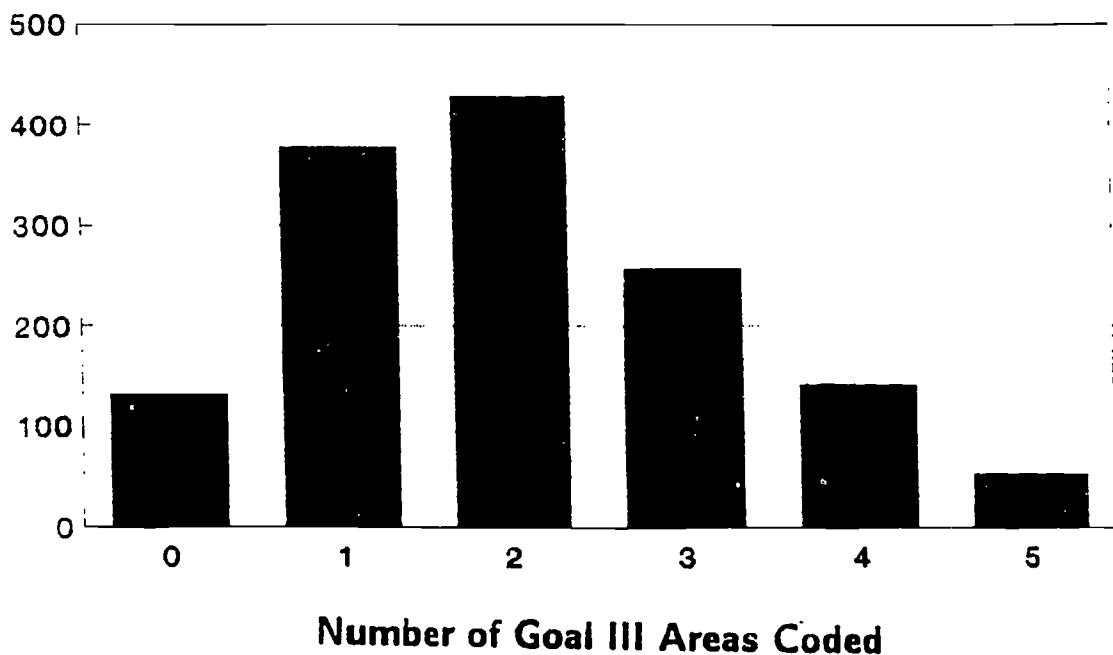
The bar graph below shows the distribution of coding across the seven mathematical areas listed under Goal III. Since many of the codable items in the library involve more than one area of mathematics, the numbers add to more than 1386. See Appendix D for a finer tally of segments according to the detailed outline of the mathematical areas in our elaborated goal statement (Appendix B).

Number of Segments Coded for Goal III Categories



### Mathematical Diversity.

Many items in the library incorporate more than one area of mathematics. The graph below shows the mathematical diversity of the 1386 items coded for Goal III by reporting the number of multiply-coded items according to the multiplicities. For example, 257 items involve mathematics of exactly three categories. Of the total, 879 (63%) involve two or more areas of mathematics.



### Distribution of Items Coded for More Than One Goal III Category

The matrix below is designed to show the frequency of certain combinations of Goal III categories. For example, 220 of the 1386 codable items are coded for both IIIA (Numbers and Counting) and IIIB (Arithmetic of Rational Numbers).

	A	B	C	D	E	F	G
A	-	220	24	152	4	128	16
B	-	-	73	214	17	107	82
C	-	-	-	23	2	23	81
D	-	-	-	-	3	98	32
E	-	-	-	-	-	12	7
F	-	-	-	-	-	-	25

#### Goal III Categories:

- A. Numbers & Counting
- B. Arithmetic of Rational Numbers
- C. Measurement
- D. Numerical Functions & Relations
- E. Combinatorics & Counting Techniques
- F. Statistics & Probability
- G. Geometry

## TALLIES OF SEVERAL OTHER ATTRIBUTES

The table below shows the number of the 1386 codable items that exhibit any of several other attributes.

- o While calculator use and computer use are not a specific concern of the series, characters use them when it is natural and appropriate.
- o We try to provoke the viewer to participate directly in doing some mathematics integral to a segment, such as playing along in a game show, or by later thinking about an unanswered question. Note: there is an evidence in the SQUARE ONE research studies that viewers do "participate directly" even if there is no explicit invitation to do so.
- o Modeling appropriate behavior in the face of errors or mistakes is part of the design of the series. Therefore, we make note of segments in which a character makes a mistake and corrects it.

The five tallies are as follows.

Calculator use	57	4%
Computer use	81	6%
Invitation for direct viewer participation	214	15%
Unanswered questions	99	7%
Errors exhibited	252	18%

## POTENTIAL FOR FURTHER ANALYSIS

Other analyses of the content and problem-solving data are possible, but not pursued in this report. In particular, no one could make comparisons among seasons. (Some cumulative data are included in Appendix D for the interested reader. We have not analyzed relationships that may exist among the three goals as they are approached through the series. Some of these relationships are apparent simply from the structure of the objectives under each of the three goals. As an example, one would expect a high percentage of segments that are coded for the problem-solving treatment called "consider probabilities" (Goal IIB5) to have mathematical content that has been coded for probability (Goal IIIF), and in fact 87% of them do. Other connections among goals are not so apparent, however, and would require additional analysis. One might ask, for instance, which specific heuristics (sub-objectives of Goal IIC) are most frequently associated with the various content categories of Goal III. The data provided in Appendix E allow the interested reader to pursue similar questions.

Furthermore, no attempt has been made here to analyze how the goal content of the programs relates to what viewers gain from watching. This is a complex subject; it is discussed in

ail in a report of a research study of the first season of  
SQUARE ONE TV<sup>10</sup>.

Readers may be interested to know of a large scale  
evaluation of the effects of SQUARE ONE TV in which children's  
problem solving was assessed in a manner closely aligned with the  
goals of SQUARE ONE TV, particularly Goal II. This study showed  
that children who viewed SQUARE ONE TV daily over an extended  
period used a wider variety of problem-solving actions and  
characteristics than those who did not. A summary appears in The  
Journal of Mathematical Behavior<sup>11</sup>.

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1, T., Rockwell, A., Esty, E., & Gonzer, K. (1987). SQUARE ONE TV: The Comprehension and Problem-Solving  
Study, Final Report. New York: Children's Television Workshop.

1, T., Esty, E., & Fisch, S. (1990). Television and Children's Problem-Solving Behavior: A Synopsis of an  
Evaluation of the Effects of SQUARE ONE TV. Journal of Mathematical Behavior, 9(2), 161-174.

APPENDIX A

SQUARE ONE TV

CODING OF SEGMENTS

SQUARE ONE TV  
CODING OF SEGMENTS

Betsy McNeal and Karen Singer  
Children's Television Workshop  
August 1, 1991

This report describes the system used to code each segment of Square One TV for content analysis of all four seasons of production. The analysis is intended to aid in the assessment of how well Square One is meeting its goals, as well as in the preparation of show rundowns. This analysis is complemented by the Analysis of "Mathnet" Scripts prepared by Schneider, Miller McNeal, and Esty. These "trunk" analyses weight the sophistication of the mathematical problems treated in each "Mathnet" episode, but do not categorize the problems by content area.

Each segment produced is coded on a coding form. This form provides a quick way to check off actions and dialogue that correspond to the three goals of Square One TV. It is important to note that each topic area is coded only once, even when it is mentioned more than once in the segment. Furthermore, the coding gives no indication of the order of occurrence or of the strength of the treatment of these content areas; the goals are listed alphabetically in the database. As the coding system has evolved, the form has changed. A copy of the current form is included at the end of this report. The coding for each segment is then entered into the database, and, finally, used to produce a content analysis report of the complete Square One library. Changes in coding resulting from the evolution of the coding process have been made in the database so that it shows the current assignment of goals.

Once the coding information is entered into the database, segments can be called up according to the goals that they address, the necessary column names and descriptions are given in Square One TV Production Database, a report written by Pierce and Schneider. Brief notes are included on the coding sheets (but not in the database) wherever the appropriateness of a certain goal is unclear.

The information in this report is organized according to the list of goals for Square One TV. Examples are given with their production numbers in parentheses to illustrate the interpretations made in the process of coding the segments from Seasons I-IV.

## I. Positive attitudes and enthusiasm

In order to motivate its viewers about mathematics, Square One TV presents segments that model and promote positive attitudes about the subject. For purposes of analysis, three positive associations with mathematics are defined: mathematics as a powerful tool, as something that is aesthetically pleasing, and as a subject that can be developed and understood by nonspecialists. The coding for goal I serves as an indicator of how well the show presents all three of these.

### A. Mathematics is a powerful tool

Segments are coded for IA whenever mathematics is explicitly used to solve a concrete, practical problem. That is, it is not coded when mathematical topics are explored for their own sake. "Dirk Niblick: To There and Back" (40041, 40042) is coded for IA because Dirk and friends used math to figure out the most economical delivery plan. Inserts such as "Mathematics, it's a mental tool, use your noggin ... it's supercool" (43040) are coded for goal IA because math is described as a "tool", even if concrete examples are not given.

### B. Mathematics is aesthetically pleasing

Segments are coded for IB when a character's response to something mathematical is one of amazement or appreciation; when something mathematical is conceptually or visually beautiful; or when mathematical patterns are shown (these can be visual patterns, e.g., graphics in "The Infinity Song," 10230). "Daddy Knows Different: Stainless Forks" (12990) is coded IB because the father falls over when he hears how much money he will have to pay if he doubles the amount each day. "Person on the Street" segments about large numbers are coded IB when they include explicit verbal responses like, "Wow!" (e.g., 30970).

### C. Mathematics is initiated and understood by nonspecialists

A nonspecialist is defined for coding purposes as anyone who is not an expert in mathematics or in a very closely related science (a medical doctor is a nonspecialist according to this definition). The "Mathcourt" episodes show nonspecialists using mathematics. Comments such as "Insert: Dracula 2" in which Dracula says, "I was always good at math in school," are coded for IC because the

individual is making comments in relation to his or her relationship to mathematics. Comments by, say, Julie Brown, that mathematics is a "mental tool" are not considered to indicate anything about her relationship as a nonspecialist to mathematics.

## II. Problem solving

The second goal of Square One TV is to model the process of problem solving. Approaches to problem formulation, treatment, heuristics, and follow-up are treated. All phases of this process are coded as problem solving. A segment is coded for goal II if any one of the following is true:

- A specific problem is stated or formulated (coded as IIA-1) without necessarily being solved, for example, in a Monday episode of "Mathnet"; or
- A problem-solving heuristic such as "make a chart" is explicitly stated, for example in "Mathman Math Myths" and "Math-Za-Poppin", without a problem necessarily being solved; or
- Problem treatment is exhibited without necessarily formulating for the viewer a clear problem to be solved. For example, in "Division of: Estimation" (40710), a worker is seen making an approximate measurement and then a calculation although the specific problem she is solving is unclear.

### A-1. Recognize or state a problem

When the problem to be solved is specified, then the segment is coded for IIA-1 and "problem solving". The problem statement or re-statement should occur before problem treatment is begun in order to be classified as problem formulation (IIA-1) rather than as recall of information (IIB-1). An example is "Callous: Candy Box" (16700) in which Henry Clayborn explains to Callous' daughter that he was supposed to make a rectangular box that would fit 101 candies in one layer.

### A-2. Assess value of solving

This is coded when an explicit statement is made referring to the need to find a solution or to the consequences of failing to solve the problem. For example, Pat might go to jail if the Mathnetters do not solve the "Case of the Calpurnian Kugel Caper" (40071-40075).

### A-3. Assess possibility of solving

This is coded when an explicit statement is made about the certainty of finding a solution, or the difficulty of solving the problem. An example is "Dirk Niblick: DT's Map" (40011, 40012) in which DT, Beasley, and Dirk discuss the possibility of coloring all 48 contiguous states using just three colors.

### B-1. Recall information presented

Segments are coded for this when the problem data is reiterated as part of the problem treatment, as opposed to situations in which a problem is formulated (IIA-1). In the game shows, restatement (repetition) of the problem by the host for contestants is not coded at all because it has already been coded as IIA-1. In "Mathnet" segments, both "What Do We Know?" and recaps that are introduced by a reference to the explicit intention to review the facts are coded as IIB-1.

### B-2. Estimate or approximate

When characters explicitly make an estimate or an approximation as part of the process of solving a problem, the segment is coded for IIB-2. Although there is not much verbal comment in "If It's Out There: Shopper" (43050), it is a good example of IIB-2 in its visual portrayal of a cashier estimating three quarters of a watermelon.

### B-3. Gather data, check resources

This is a broad category that encompasses diverse ways in which more data are gathered to solve a problem. It includes consulting an expert, taking measurements, or interviewing suspects.

### B-4. Calculate or manipulate geometric (mental or physical)

All calculations in the course of solving a problem are coded as IIB-4, as in "Square One Challenge 1, Question #3" (40223) where the panelists figure the price of popcorn and gum. Manipulation of geometric objects is also coded IIB-4, for example, fitting two triangular pieces over a rectangle to compare areas in "Mathcourt 6: Lawn Area" (40420).

## B-5. Consider probabilities

This includes not only the calculation of specific probabilities, but discussion of the general probability of an event as well; for example, describing something, with some justification, as "unlikely" or "highly probable". "Dirk Niblick: Take Two And..." (40061, 40062) is coded for this: Dirk, coaching baseball, uses the records of the team members' previous plays to make predictions about their probability of success.

## B-6. Use trial and error; guess and check

This is coded when the method of solution specifically includes the testing of a number of solutions in a systematic manner, not simply a series of mistakes. In "Dirk Niblick: DT's Map" (40011, 40012), DT and Beasley use a "trial and error" approach as they first try to color a map with three crayons, fail, and then try with four and succeed.

## C-1. Represent the problem

Goal IIC-1 is coded only for tools used as part of the problem treatment.

## a. Scale model, drawing, or map:

These must show scale or measurements. In "Mathcourt 6: Lawn Area" (40420), a scale model of the prosecutor's lawn is used to show that the areas of the triangular piece and the rectangular piece are the same.

## b. Picture, diagram, or gadget:

Diagrams are distinguished from scale models in that they represent some aspects of a situation accurately, but not all. These do not show scale; for example, spinners and nets which are then folded up are considered gadgets (a gadget is the three dimensional analog of a diagram), as is the function machine in "Celebrity Kitchen" (14070).

## c. Table, chart:

This includes any organization of data in a form where it is available for examination, for example, Superguy uses his super powers to make a chart to convert dollars to droobs in "Superguy: Flying down to Freezo" (13780).

## d. Graph:

An example is "Ice Cream Store: Calories" (10130) in which a woman on a diet chooses a frozen treat by using a bar graph showing the number of calories in each.

## e. Use objects, act out:

This includes simulations as well as solving the problem directly through physical manipulations, for example, counting out coins to represent fractions as in "Mathcourt 3: Adding Fractions" (40390). In "Bobo's Dilemma" (15410), Bobo the clown uses objects as he tries to find a way to travel 7' to the center of a circus ring using two 6 1/2' boards.

## C-2. Transform the problem

## a. Reword or clarify:

This is coded for rewording or clarification of the problem (or some part of the problem) that occurs during the problem-solving process. For example, the doctors in "General Mathpital: Asymmetriosis" (40520) redefine symmetry as making one half of the object look like the other half.

## b. Simplify:

The reduction of a problem to a simpler case falls under this heading. For example, only the blue bars (showing high temperatures) are needed to read the lowest high temperature off of a two-color bar graph in "Square One Challenge 4A: Question #2" (30183).

## c. Find subgoals, work backwards:

This is used to code explicit treatment of a problem in more than one step, but does not include the steps of a calculation. For example, in "Square One Challenge 4, Question #2" (40252), one of the panelists works backwards to find how long before half of a pond is covered by lily pads if the surface area covered doubles every month.

## C-3. Look for:

## a. Patterns:

The patterns need not be strictly mathematical. In many episodes of "Mathnet", for example, Pat and George look for patterns of thefts, and this is coded as IIC-3a.

## b. Missing information:

This applies to situations in which the characters search for particular information that they are missing

and that they think might be relevant to the problem at hand, as in "Spade Parade: Des Moines Duck" (12361, 12362) when Spade asks Ms. Nouveau which of her guests had been wearing gloves and which had been carrying luggage.

c. Distinctions in kinds of information:

This is coded when characters explicitly designate data as relevant or irrelevant to the problem, as in "Math-net: Missing Monkey" (11031-11035) when George calculates the cost of the stolen bananas and Kate replies, "but I don't think that's a problem we should be working on."

C-4. Reapproach the problem

a. Change point of view, reevaluate assumptions:

For this coding, the characters must act on their reevaluation. For example, in "Elephants in Pens" (15840), two cavemen try to put 11 elephants into pens in odd-numbered groups, and are unable to do so until they decide that one pen may contain another. Assignment of goal IIC-4 does not necessarily imply IIC-4b (new hypothesis), but often does.

b. Generate new hypotheses:

This is used to code any proposal of an hypothesis different from the first, even if it does not involve a reevaluation of the situation (IIC-4a). This includes suggestions starting with "What If...?"

D-1. Discuss reasonableness of results

This includes simple comments about the result or conclusion such as "That makes sense," as well as discussions of precision of results. For example, in "Whither Weather" (13120), the weatherman points out that the security guard's calculation of average snow depth as 0.75" cannot be right because the smallest measurement taken was 1".

D-2. Look for alternative solutions

This is coded when someone has generated a solution and then proceeds to search for an alternative one, for example, "Callous: Candy Box" (16700), in which the characters look for several ways to package 101 candies in rectangular boxes. This also includes any situation in which two valid answers to a problem are illustrated, as when both panelists give valid answers in "Square One Challenge."

## D-3. Look for alternative ways to solve

This includes looking for another method of solution after a solution has been reached. For example, the doctors in "General Mathpital: Asymmetriosis" (40520) look for ways to make the patient symmetric with fewer surgical cuts. This search does not always involve reevaluation of the assumptions behind a problem, but when it does, the segment is also coded for "reapproach the problem" (IIC-4a).

## D-4. Look for, or extend to, related problems

A segment is coded IID-4 when a generalization is made or suggested. For example, in a "Square One Challenge" question that asks what shape would be gotten when a sphere is sliced (30241), the answer includes the statement that "No matter where you slice it, you'll get a circle."

## III. Present sound mathematical content in interesting ways

The third goal of Square One TV is to present a broad range of topics, many of which are not included in the typical elementary school curriculum. Coding takes into consideration only the mathematical tools used or ideas explicitly expressed in a segment, not sophisticated interpretations that they might evoke. Note that no distinctions have been made between levels of importance of these content areas to the segment.

## A. Numbers and counting

## 1. Whole numbers:

This area is so general that segments are not coded as such in every case involving whole numbers. Instead, this category is reserved for segments which focus on the properties of whole numbers as a set, such as "Infinity - There Is No End" (31110). Another example is the "Amazing Story of Nines" (11351, 11352) in which a genie explains that the sum of the digits of a multiple of nine is also a multiple of nine.

## 2. Numeration (place value, palindromes, other bases, Roman numerals):

This is also used for the subject of large numbers (million, billion), as in the song "One Billion is Big" (20850) which describes one billion as one thousand times a million.

3. Rational numbers (interpretations of fractions as numbers, ratios, parts of a whole or of a set):  
 "Mathcourt 3: Adding Fractions" (40390) fits under this heading because of a discussion of fractions where parts of a whole are compared to parts of a dollar ("half" and "quarter" dollars).
4. Decimal notation (role and meaning of digits in decimal numeration):  
 An example of this subheading is "General Mathpital: Decimal Point" (40480) in which two surgeons discuss the different meanings of a numeral with different placement of the decimal point.
5. Percents (uses; link to decimals and fractions):  
 The song "Harry's Hamburger Haven" (14240) compares the fractional, decimal, and percent notations for some specific fractions, and is a good example of IIIA-5. "Piece of the Pie" segments are also coded this way because of the graphics shown in the opening.
6. Negative numbers (uses; relation to subtraction):  
 "Less Than Zero" (14150) is a song about an athlete who earns negative scores in Olympic-type games.

#### B. Arithmetic of rational numbers

1. Basic operations (addition, subtraction, division, multiplication, exponentiation; when and how to use operations):  
 Similar to the coding of goal IIIA-1, a segment is not coded IIIB-1 for every use of the basic operations. Rather it is reserved for segments in which the choice of an operation or a calculation is central. For example, in "Dirk Niblick: DT's Map" (40011, 40012), Dirk demonstrates the commutative property of multiplication to Beasley. Another example is "Thirty-Two Divided by Five-1,2,3" (13331-13333) in which three contexts involving this same division require three different interpretations of the quotient.
2. Structure (primes, factors, and multiples):  
 Examples of this subheading are the "Perfect Squares" song (13140) which describes square numbers, and all segments of the game show "But Who's Multiplying?".
3. Number theory (modular arithmetic, including parity; Diophantine equations; Fibonacci sequence; Pascal's triangle):  
 This is used for any kind of numerical sequence, not

just the Fibonacci sequence. For example, "Mathnet: Case of the Unnatural" (40121) is coded for this because of the discussion of sequences in "Guess My Rule". Many of the "Blackstone" segments (e.g., 13441 or 13443) are coded in this way, as is the segment "Odd Pair" in which Felicia tells Oscarina that the sum of two odd numbers is always even.

4. Approximation (rounding; approximate calculation, interpolation, and extrapolation):

This is used especially for rounding or approximating the number of something, rather than for making a spatial approximation (contrast this with IIIC-3, under "measurement", used for the "Close Call" estimation games). "Wang Spot: Lemonade" (30400) is coded for IIIB-4 because one child rounds \$5.97 to "six bucks".

5. Ratios (use of ratios, rates, and proportions; relation to division; golden section):

In "John Moschitta: Peter Piper S, M, F" (17907), Moschitta's rate of speaking is illustrated in line graphs showing slow, medium, and fast on the same grid.

C. Measurement

1. Units:

This is coded where knowledge of the size of a unit is critical, not where a unit of measurement is mentioned only in passing. In "Mathnet: Despair in Monterey Bay-5" (40105), for instance, Pat and George realize that 27 fathoms is too great a distance for them to descend underwater.

2. Spatial:

Area, volume, etc. are coded here even when specific measurements are not used, for example, "Mathcourt 6: Lawn Area" (40420) is coded for this because two triangular pieces are fitted onto a rectangle to show equal areas.

3. Approximate nature of measurement:

This is used both for segments that show the approximate nature of the measurement process (even measurement devices have margins of error) and for segments that show someone estimating a measurement, with or without tools. For example, a character estimates the height of a tree in terms of his own height in "Division of: Apple Estimation" (40760).

4. Additivity:

An example is "Daddy Knows Different: Lawn Mowing-1,2" (11191, 11192) in which the son shows his dad how to compute the area of their lawn by dividing it into three rectangles and then summing their separate areas.

D. Numerical Functions and Relations

1. Relations (order, inequalities, subset relations, additivity, infinite sets):

This is used for explicit inequalities, such as those in some of the "Mathman" episodes or in the "Lightning Round" of "Piece of the Pie". It is also used for questions such as "Which is greater?", because "order" refers to the concept of greater and lesser numbers.

2. Functions (linear, quadratic, exponential; rules, patterns):

This is used in cases where something (a variable, though not necessarily ever referred to as such) changes according to the way that something else changes. There need not be any mention of a specific equation describing the relationship. An example of this is the discussion of supply and demand found in "Mathnet: The Calpurnian Kugel Caper-2" (40072). This category is used for alphanumeric codes, since they are an example of a system where letter values are assigned to specific numerical values.

3. Equations (solution techniques, e.g., manipulation, guess-and-test; missing addend and factor; relation to construction of numbers):

The "Wang Spot: Paper Route" (30410) is an example of a segment which is coded this way because it shows the solution of several equations.

4. Formulas (interpretation and evaluation; algebra as generalized arithmetic):

This is coded for some of the "Mathman" inequality segments where Mathman must find a number satisfying an inequality such as,  $x + 3 > 6$ , and for "Wang Spot: Paper Route" (30410) where variables are replaced by calculated values.

E. Combinatorics and Counting Techniques

1. Multiplication principle and decomposition:

The song "Combo Jombo" (21400) is coded for this. It describes how to figure, say, the number of different

quartets that can be made from two drummers, two sax players, and three guitar players.

2. Pigeonhole principle:

"Square One Challenge 8: Question #3" (40353) asks how many socks must be pulled from a drawer of black and brown socks in order to guarantee a pair.

3. Systematic enumeration of cases:

This category is used primarily to code segments involving logic problems. For example, Spade Parade makes a series of deductions to figure which of three men is telling the truth in "In Search of Yucca Puck" (15901).

F. Statistics and Probability

1. Basic quantification (counting; representation by rational numbers):

In "Grempod & Blotmo: Sponge Candy" (14420), aliens with four hands instead of two try to choose the hand holding the sea fig, thus illustrating the expression of probabilities as ratios.

2. Derived measures (average, median, range):

"Whither Weather" (13120) treats the concept of an average with a discussion of a bar graph of the depth of snow found in six places on a rooftop.

3. Concepts (independence, correlation; "Law of Averages", etc.):

This list of concepts is not all-inclusive. For instance, the discussion of random number generators with replacement or nonreplacement systems in "Mathnet: The Calpurnian Kugel Caper-1,2" (40071, 40072) is coded under this subheading.

4. Prediction (relation to probability):

The voice-overs in Season III episodes of "But Who's Counting?" (e.g., 30520) point out the probability of a given number turning up on the wheel, and in "Mathnet: Swami Scam-3" (30013) the probabilities of a given prediction coming true are discussed.

5. Data collection and analysis:

This refers to situations in which someone performs a simulation or experiment and/or analyzes data that have been collected (by making calculations on the data, making a chart, making qualitative analyses, etc.). For example, in "Mathnet: Despair in Monterey Bay-4" (40104), George and Pat chart the times

various objects took to fall through 10 feet of water.

6. Data presentation and interpretation (graphs, charts, tables; construction and interpretation):

This is coded for use or discussion of graphs, charts, or tables, whether the characters are in the process of deciding how to present the data in one of these forms, making the chart, or interpreting a chart that has already been made. This subcategory often overlaps IIIF-5 (data collection and analysis), but must include some sort of graph, chart, or table. For example, the Mathnetters examine insurance policy data from charts, graphs, and tables in "Mathnet: Purloined Policies" (40082).

#### G. Geometry

1. Dimensionality (one, two, three, and four dimensions):  
Segments coded for IIIG-1 include "Math-Za-Poppin' #2" (30730) which presents an interview with Descartes, and "Me and My Shadow" (13660) in which a dancer explains differences between two and three dimensions to her shadow.
2. Rigid transformations (transformations in two and three dimensions; rotations, reflections, and translations; symmetry):  
"Square One Challenge" questions about aligning two boxes so that the triangles painted on them match exactly (40231) and about predicting the shape produced by cutting an "F" into a paper folded four times (40221) illustrate IIIG-2. Another example is seen in "Mathcourt 6: Lawn Area" (40420) where two triangular pieces of cardboard are laid on top of a rectangular piece to prove their areas are the same.
3. Tessellations (covering the plane and bounded regions; kaleidoscopes; role of symmetry; other surfaces):  
The "Tessellation Song" (15810) which illustrates many different tessellations is a good example of this subheading.
4. Maps and models in scale (application of ratios):  
"The Map" (14050) shows a boy not only reading a map, but using the scale to calculate the length of a car trip.

5. Perspective (rudiments of drawing in perspective; representation of three-dimensional objects in two dimensions):

In "Mathnet: The Map with a Gap-1" (20001) a map is read in the reflection of a cylindrical mirror.

6. Geometrical objects, constructions, patterns (recognition; relations among; constructions; patterns):

This subheading covers a wide range of material. Some examples of segments coded as IIIG-6 are: "An Interesting Game of Football" (14370) for its story involving a trapezoidal football field, "Mathnet: Ersatz Earthquake-2" (30002) for its treatment of trilateration, "Angle Dance" (10180) for the discussion of angles, and all games of "Triple Play," which require the recognition of equilateral triangles.

7. Topological mappings and properties (invariants):

This topic occurs rarely. An example is "Moebius Trip" (10700), an animation in which a car is seen driving along a highway built like a Moebius strip.

The coding form also includes a short list of other topics for analysis: unanswered questions to the viewer, invitations to participate, calculator and/or computer use, and mistakes made and corrected. Just as in the coding of other categories, evidence of these must be explicit. Finally, each segment is given a flag if it is considered to involve problem solving.

- unanswered questions to the viewer

This must be an explicit question that is posed to the viewer and not answered during the segment. If there are intervening segments, it can be a question posed in part 1 of, say, a "Dirk Niblick" which is answered in part 2. If the person speaking does not address the viewer specifically, but wonders aloud about a mathematical question, this is also considered an "unanswered question to the viewer". "Mathnet: Despair in Monterey Bay-1" (40101), where George asks, "I wonder how hard the wind has to blow to change the angle of the rain this much?", is an example of this. Note that an "unanswered question" implies an "invitation to participate".

- invitation to participate

This must be an explicit invitation. Even segments that are conducive to viewer participation by their very nature, such as "Close Call" or "Mathman," are not coded for this

without an explicit invitation. "Check this out" is not considered an invitation to participate, only to view. An example that does qualify is "get pencil and paper" in "But Who's Counting?"

- calculator use

This refers to instances when it is clear that a character is using a calculator, even if the viewer does not know the problem motivating the calculator use. "Division Of: Estimation" (40710) is an example of this, since the contractor is shown using a calculator as she estimates.

- computer use

Just as with the calculator, this is noted when someone uses a computer, whether or not the reasons for use are apparent. "Dirk Niblick: Golden Years" (40021, 40022), for example, is coded for this because it opens with Dirk using his home computer, even though his particular use for it is not referred to in the episode.

- mistakes made and corrected

This is coded when individuals model good reactions to a mistake that one of them made (not just any time a mistake is made). An example of this occurs in "Cosmic Carpets" (11980) in which an earthling points out that two aliens have incorrectly computed the area of a region by dividing it into overlapping rectangles. This category is also coded when people are talking about a past mistake and how they dealt with it, as when Pat and George describe their incorrect dive locations in "Mathnet: Despair in Monterey Bay-5" (40105).

- problem solving

A necessary condition for a segment to be considered "problem solving" is that it explicitly exhibit one of the stages of problem solving: formulation, treatment, and follow-up. If a problem is introduced but not worked on during the segment, the segment is coded as problem solving because it models problem formulation. Examples of this are frequently found in Monday episodes of "Mathnet" that set a problem, but end before the Mathnetters begin its treatment. "Problem solving" is also used for a description of problem solving actions that actually occurred prior to the time of discussion, as in episodes of "Mathcourt".

Some of the goals are directly linked, and these were used to check the coding. For problem solving segments, some goal III categories should imply that corresponding goal II categories be coded:

- Coding of a segment for goal IIIB-4 (rounding) implies that the segment should also be coded for goal IIB-2 (make estimates).
- Coding for goal IIIC-3 (estimation in measurement) implies coding for goal IIB-2 (take measurements, estimate).
- Coding for goal IIIF-4 (prediction related to probability) implies that a segment should be coded for goal IIB-5 (consider probabilities).
- Coding for goal IIIG-4 (maps) implies coding for goal IIC-1a (use of maps, scale models).

In many cases, segments coded for IIB-2 (make estimates or take measurements), are also coded for IIIB-4 (rounding) or IIIC-3 (approximate nature of measurement). Similarly, segments coded for IIC-1a (represent the problem: scale model, drawing, map) were checked to see if they should also be coded as IIIG-4 (maps and models in scale). Many segments coded for probability with regard to prediction, IIIF-4, are also coded for IIIF-1, probability expressed as a ratio.

Finally, a question to the viewer implies an invitation to participate, and a segment is coded as "problem solving" if and only if some categories of goal II are coded as well.

"Mathnet" and some game shows recur over all four seasons. Some notes are given below about how they are coded.

#### A. General Notes

All game shows with child participants are coded IC for their demonstration that mathematics can be developed, understood and used by nonspecialists.

All game shows are considered to be problem solving.

Each game show explicitly states a problem, IIA-1.

#### B. "Square One Challenge"

The "Square One Challenge" segments are unlike any of the others in that three distinct and unrelated problems are presented. As one of our aims is to present problems

covering many content areas, coding the game as a whole would overcount the number of segments involving two or more distinct categories of goal III. Each question is therefore coded on a separate coding form and is given its own production number. The game itself is not coded. The last digit of the production number of each question is a 1, 2, or 3, depending on its order in the context of a particular game. For example, the production number for "Square One Challenge 3" in Season IV was 40240, so the second question of "Square One Challenge 3" is labeled 40242.

All "Square One Challenge" games are coded for IC (understood by nonspecialists), problem solving, and IIA-1 (state a problem).

The problem-solving approaches (goal II) coded for problem treatment, representation, and follow-up are those explained in the cast members' justifications, not assumptions about the approach that a child contestant might take.

Goal IIC-2a (reword or clarify) is coded if and only if the rewording is done by the cast members who are solving the problem (the host rewords a statement before the problem-solving process begins, so his instruction is not considered part of any heuristic).

When both cast members supply correct answers, the segment is coded for IID-2 (look for alternative solutions). Segments in which the host mentions the possibility of an additional solution after the cast members' answers are revealed are also considered to exhibit IID-2.

An extension of a problem, suggested by the host when he says something like, "Our viewers might want to think about ..." is an example of IID-4 (look for, or extend to, related problems). Such comments are also considered to be both "unanswered questions to the viewer" and "invitations to participate".

The betting round (question #3 in Season IV games) is not automatically coded for IIIF-4 (prediction with relation to probabilities), since it is not known whether the child contestants considered probabilities in making their betting decisions.

Since the Venn diagrams that are used as scoreboards behind the contestants are not specifically mentioned, they are not coded as IIIF-6 (data presentation and interpretation).

C. "Piece of the Pie"

These segments are all coded for IA (mathematics as a powerful tool) and IC (mathematics is understood and used by nonspecialists). Although the problem to be solved by the contestants is not really a mathematical one, the segments are coded as problem solving because of the problem-solving heuristics that are used: IIA-1 (state a problem), IIB-6 (guess and check) and IIC-3b (look for missing information). They are not coded for IIC-1 (represent the problem), because the contestants do not explicitly use a graph.

All "Piece of the Pie" segments address goals IIIA-5 (percents), IIIB-1 (basic operations), IIID-1 (inequalities) for the comparison of the contestant's score to the target score in the "Lightning Round", and IIIF-6 (data presentation).

When the unguessed possibilities are discussed at the end of a game, the segment is coded for IID-2, look for an alternative solution.

When the contestants call a huddle, the segment is coded for IIB-3 (gather data, check resources).

D. "Close Call"

Unlike "Square One Challenge" questions, the three tasks in each game are coded on a single coding form as they all address the same content areas.

These segments are all coded as addressing goal IC (nonspecialists initiate, develop, and understand mathematics), problem solving, IIA-1 (state a problem), IIB-2 (estimate), IID-1 (discuss reasonableness and precision of results), and IIIC-3 (approximate nature of measurement). Goal IIC-1 (represent the problem) is not coded because the props used are considered to be a central part of problem formulation, not methods for approaching a solution.

Segments are coded as IIIC-1 (units of measurement), IIIC-2 (spatial measurements), and IIIG-4 (maps and models in scale), depending on the tasks. For example, IIIG-4 is used when specific measurements are given and the prop that is used is a scale representation of something.

The segments are coded for "invitation to participate" only if voice-over announcements contain an explicit invitation to the viewer.

#### E. "Mathnet"

The goals coded for each episode of "Mathnet" are noted in the margins of the scripts for reference.

The recurring heuristics of "What Do We know" and "What If" are coded as IIB-1 (recall information) and IIC-4b (generate new hypotheses), respectively.

Goal IIA-1 is coded each time a problem is stated, whether or not it is considered to be the main problem that the Mathnetters are solving. Distinctions between the primary problem and subsidiary or tangential ones are made in the trunk analyses found in Analysis of "Mathnet" Scripts. If a problem is restated in successive episodes, it is coded again for those segments.

#### her Notes:

All "Phoners" are coded as IC for their presentation of nonspecialists who initiate and understand mathematics.

All nets are coded as IIIG-5 (representation of 3-dimensional objects in 2 dimensions), IIIG-6 (geometric objects), but not IIIG-2 (rigid transformations).

All occurrences of triangulation are coded as IIIG-6 (geometric constructions -- relations among geometric objects), not IIIG-5 (perspective).

Segments about large numbers are coded as IIIA-2 (numeration -- place value).

All occurrences of alphanumeric codes and sequences are coded as IIID-2 (functions -- patterns). Sequences are also coded as IIIB-3 (number theory -- sequences).

Production information for promotions and specials is entered into the database, but are not coded.

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# CONTENT ANALYSIS

## GOAL I

- I. Positive Attitudes and Enthusiasm:
  - A. Powerful and Applicable Tool
  - B. Beautiful Aesthetically Pleasing Subject
  - C. Initiated, Developed, and Understood by Non-Specialist

## OTHER ANALYSIS

- Unanswered questions to viewer
- Invitation to participate
- Calculator use
- Computer use
- Mistakes made and corrected

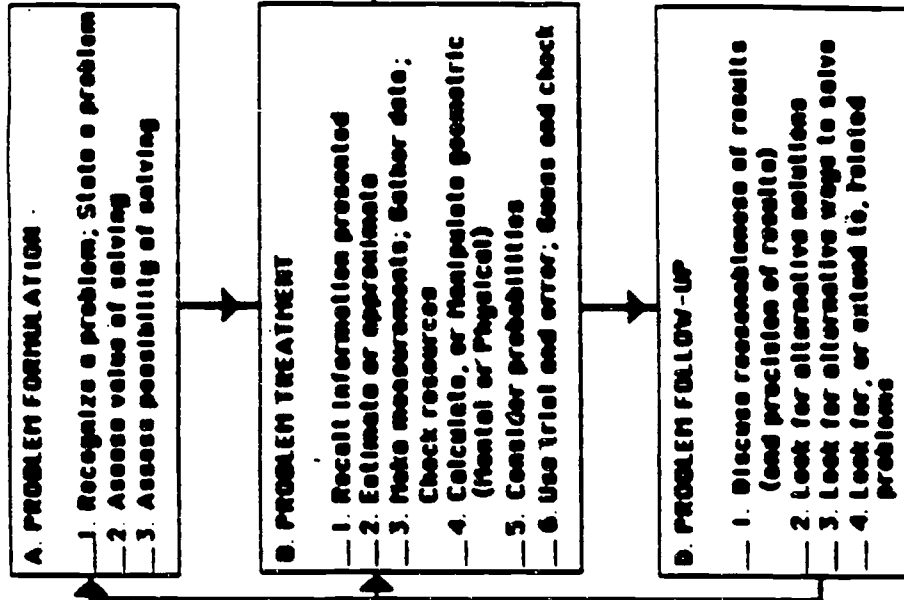
PROBSOLV

NOT PROBSOLV

## GOAL III

Mathematics Content

## ACTION



## HEURISTICS

- C1 REPRESENT PROBLEM**
  - a Scale model, drawing, map
  - b Picture, Diagram, gadget
  - c Table, Chart
  - d Graph
  - e Use objects, Act out
- C2 TRANSFORM PROBLEM**
  - a Reverse, clarify
  - b Simplify
  - c Find subgoals, sub-problems (work backwards)
- C3 LOOK FOR**
  - a Patterns
  - b Missing info
  - c Distinctions in kinds of information pertinent, extraneous
- C4 REAPPROACH PROBLEM**
  - a Change point of view; Reevaluate assumptions
  - b Generate new hypotheses

Date: \_\_\_\_\_ Prod #: \_\_\_\_\_  
 Code: \_\_\_\_\_ Title: \_\_\_\_\_

APPENDIX B

SQUARE ONE TV

COMPLETE STATEMENT OF GOALS

## SQUARE ONE TELEVISION--ELABORATION OF GOALS

- GOAL I. To promote positive attitudes toward, and enthusiasm for, mathematics by showing:
- A. Mathematics is a powerful and widely applicable tool useful to solve problems, to illustrate concepts, and to increase efficiency.
  - B. Mathematics is beautiful and aesthetically pleasing.
  - C. Mathematics can be understood, used, and even invented, by non-specialists.
- GOAL II. To encourage the use and application of problem-solving processes by modeling:
- A. Problem Formulation
    - 1. Recognize and state a problem.
    - 2. Assess the value of solving a problem.
    - 3. Assess the possibility of solving a problem.
  - B. Problem Treatment
    - 1. Recall information.
    - 2. Estimate or approximate.
    - 3. Measure, gather data or check resources.
    - 4. Calculate or manipulate (mentally or physically).
    - 5. Consider probabilities.
    - 6. Use trial-and-error or guess-and-check.
  - C. Problem-Solving Heuristics
    - 1. Represent problem: scale model, drawing, map; picture; diagram, gadget; table, chart; graph; use object, act out.
    - 2. Transform problem: reword, clarify; simplify; find subgoals, subproblems, work backwards.
    - 3. Look for: patterns; missing information; distinctions in kind of information (pertinent or extraneous).
    - 4. Reapproach problem: change point of view, reevaluate assumptions; generate new hypotheses.

D. Problem Follow-up

1. Discuss reasonableness of results and precision of results.
2. Look for alternative solutions.
3. Look for alternative ways to solve.
4. Look for, or extend to, related problems.

GOAL III. To present sound mathematical content in an interesting, accessible, and meaningful manner by exploring:

A. Numbers and Counting

1. Whole numbers.
2. Numeration: role and meaning of digits in whole numbers (place value); Roman numerals; palindromes; other bases.
3. Rational numbers: interpretations of fractions as numbers, ratios, parts of a whole or of a set.
4. Decimal notation: role and meaning of digits in decimal numeration.
5. Percents: uses; link to decimals and fractions.
6. Negative numbers: uses; relation to subtraction.

B. Arithmetic of Rational Numbers

1. Basic operations: addition, subtraction, division, multiplication, exponentiation; when and how to use operations.
2. Structure: primes, factors, and multiples.
3. Number theory: modular arithmetic (including parity); Diophantine equations; Fibonacci sequence; Pascal's triangle.
4. Approximation: rounding; bounds; approximate calculation; interpolation and extrapolation; estimation.
5. Ratios: use of ratios, rates, and proportions; relation to division; golden section.

### C. Measurement

1. Units: systems (English, metric, non-standard); importance of standard units.
2. Spatial: length, area, volume, perimeter, and surface area.
3. Approximate nature: exact versus approximate, i.e., counting versus measuring; calculation with approximations; margin of error; propagation of error; estimation.
4. Additivity.

### D. Numerical Functions and Relations

1. Relations: order, inequalities, subset relations, additivity, infinite sets.
2. Functions: linear, quadratic, exponential; rules, patterns.
3. Equations: solution techniques (e.g., manipulation, guess-and-test); missing addend and factor; relation to construction of numbers.
4. Formulas: interpretation and evaluation; algebra as generalized arithmetic.

### E. Combinatorics and Counting Techniques

1. Multiplication principle and decomposition.
2. Pigeonhole principle.
3. Systematic enumeration of cases.

### F. Statistics and Probability

1. Basic quantification: counting; representation by rational numbers.
2. Derived measures: average, median, range.
3. Concepts: independence, correlation; "Law of Averages."
4. Prediction: relation to probability.
5. Data processing: collection and analysis.
6. Data presentation: graphs, charts, tables; construction and interpretation.

## G. Geometry

1. Dimensionality: one, two, three, and four dimensions.
2. Rigid transformations: transformations in two and three dimensions; rotations, reflections, and translations; symmetry.
3. Tessellations: covering the plane and bounded regions; kaleidoscopes; role of symmetry; other surfaces.
4. Maps and models in scale: application of ratios.
5. Perspective: rudiments of drawing in perspective; representation of three-dimensional objects in two dimensions.
6. Geometrical objects: recognition; relations among; constructions; patterns.
7. Topological mappings and properties: invariants.

APPENDIX C

SQUARE ONE TV

LIST OF 230 SHOWS WITH EMPHASES

## 230 SHOWS WITH EMPHASES

101		136	Fractions	201	
102		137		202	Estimation (mini)
103		138	Parity	203	
104	Scale	139	Working Backwards	204	
105	Percents	140	Probability	205	Modular Arithmetic
106	Angles	141	Angles	206	
107	Percents	142	Data Processing	207	
108	Volume (mini)	143	Geometric Objects	208	
109	Parity (mini)	144	Spatial Measurement	209	
110	Combinatorics	145	Additivity	210	Numerical Patterns (mini)
111	Probability	146	Square Numbers	211	
112		147	Rounding	212	
113	Fractions	148	Multiplication (mini)	213	
114	Shapes (mini)	149	Functions	214	
115		150		215	
116	Spatial Measurement	151	Pentominoes (mini)	216	Numerical Patterns (mini)
117	Area and Perimeter	152		217	
118	Figurate Numbers	153	Place Value	218	Numerical Functions (mini)
119	Rounding	154	Palindromes (mini)	219	
120	Prime Numbers	155	Quadrilaterals	220	
121	Common Multiples	156		221	
122		157	Scale	222	Arithmetic of Nines
123	Area of Irregular Shapes	158	Data Processing	223	Triangles (mini)
124	Factors and Primes	159		224	Percents (mini)
125	Multiples (mini)	160	Large Numbers (mini)	225	
126	Data Organization	161	Permutations (mini)	226	
127	Scale	162	Rates (mini)	227	
128	Probability	163	Probability	228	Triangles (mini)
129	Percent (mini)	164	Functions (Coding)	229	
130		165	Infinity: Parity	230	Numeration (mini)
131	Place Values	166	Multiples and Factors	231	
132	Metric Measurement	167	Tessellations (mini)	232	
133	Tessellations (mini)	168	Fractions	233	Fibonacci Sequence (mini)
	Fibonacci Sequences (mini)	169	Area and Perimeter	234	
134	Percent	170	Percents (mini)	235	
135	Rates and Ratios (mini)	171	Metric Measurement (mini)	236	
		172		237	
		173		238	
		174		239	Data Representation
		175		240	

301	Large Numbers (mini)	401	Patterns (mini)	501	Length Estimation (mini)
302		402		502	
303		403	Probability	503	
304		404		504	
305	Large Numbers (mini)	405	Symmetry (mini)	505	
	Geometry (mini)	406		506	
306		407		507	Negative Numbers (mini)
307		408		508	
308	Percents (mini)	409	Survey Data. Percents	509	
309	Large Numbers (mini)	410		510	
310	Data Representation (mini)	411	Probability (mini)	511	
311	Large Numbers	412		512	
	Approximation (mini)	413	Estimation	513	
312	Multiples (mini)	414		514	
313		415	Probability (mini)	515	
314		416		516	
315	Data Representation (mini)	417	Symmetry (mini)	517	Negative Numbers (mini)
316		418	Estimation	518	
317		419	Rates (mini)	519	Large Numbers (mini)
318	Data Representation (mini)	420		520	
319	Combinatorics	421	Fractions (mini)	521	
320		422		522	
321		423	Probability (mini)	523	Arithmetic of Nines (mini)
322		424		524	
323	Estimation (mini)	425		525	
324	Negative Numbers (mini)	426		526	
325		427	Large Numbers (mini)	527	
326	Rational Numbers (mini)	428		528	
327		429		529	
328	Multiples (mini)	430		530	
329	Percents (mini)	431	Averages (mini)	531	
330		432		532	Measurement (mini)
331		433		533	Measurement (mini)
332	Large Numbers (mini)	434	Codes (mini)	534	
333		435		535	
334		436			
335	Representing Data (mini)	437			
336		438			
337		439			
338	Fractions	440			
339					
340	Large Numbers (mini)				

APPENDIX D

SQUARE ONE TV

FURTHER DETAILS OF ANALYSIS OF SEGMENTS

ACCORDING TO GOALS II AND III

### GOAL II TALLIES

The elaborated goal statement (Appendix B) lists three to six subheadings for each Goal II objective. Tallies of the treatment of the sub-objectives in the 800 problem-solving segments of the series library are shown in the following matrix. For example, 762 of these meet sub-objective IIA1 (recognize and state a problem).

	Sub-Objectives					
	1	2	3	4	5	6
A. Formulation	762	123	79	-	-	-
B: Treatment	260	148	342	446	47	109
C: Heuristics	513	348	211	200	-	-
D: Follow-Up	225	100	74	48	-	-

### GOAL III TALLIES

The elaborated goal statement (Appendix B) lists three to six subheadings for each Goal III objective. Tallies of the treatment of the sub-objectives in the 1386 codable items of the series library are shown in the following matrix. For example, 20 of these items meet sub-objective IIIC4 (additivity).

	Sub-Objectives						
	1	2	3	4	5	6	7
A. Numbers & Counting	36	85	129	59	148	34	-
B: Arithmetic	354	146	68	104	91	-	-
C: Measurement	73	120	91	20	-	-	-
D: Functions	204	168	1	17	-	-	-
E: Combinatorics	36	1	28	-	-	-	-
F: Statistics & Probability	33	40	16	83	82	125	-
G: Geometry	26	63	15	75	11	214	10

APPENDIX E

SQUARE ONE TV

SEASON FIVE RUNDOWNS

## Reading the Show Rundowns

Each entry includes descriptive data about a segment from the production data base.

### Line one:

Show number--the first digit signifies the season number;  
Item number--the serial number of the segment in its show;  
Item Title;  
Production number--unique to each segment;  
Item format--a three-letter code;

ANI	animation
GAM	game show
LAF	live-action film
NET	<u>Mathnet</u> episode
PAR	continuation of a multi-part segment
SON	song
SOS	game question
STU	studio sketch

Length--the running time of the segment.

### Line two:

Brief description;

### Last line:

Goal I classification;  
Goal II classification;  
Goal III classification;  
Problem-solving segment (PS)--X stands for "yes".

Example: On the first page of the rundowns, we have, for show number 501, item 2, a song (SON) entitled Rules of Thumb, listed with its brief description, Goal I coding of A and C, several Goal II classifications, and its Goal III coding of "B4 C1 C2 C3 C4".

Note: The goal content of continuations of multi-part segments (PAR) is ordinarily coded under the first part. Hence the goal classifications for segments marked "PAR" are blank.

# SQUARE ONE TV RUNDOWNS

- 501- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 501- 2 RULES OF THUMB 50260 SON 4:03  
 Kid'n Play rap about estimating the area of the floor in their new place. They try several rules of thumb (quarter, human foot, arm span) before they find one that is convenient.
- GOAL 1: A C GOAL 2: A1 B2 B3 C1E D1 GOAL 3: B4 C1 C2 PS: X  
 D3 C3 C4
- 501- 3 ZOOK & ALISON #2: WHEEL OF DESTINY 50080 ANI 7:23  
 Zook & Alison must find Uncle Wilt in one of a chain of restaurants in L.A. They go to several asking if he's been seen, and narrow their choices by recording data about the chain in a Venn diagram.
- GOAL 1: A C GOAL 2: A1 A3 B3 B6 C1a GOAL 3: D1 F6 PS: X  
 C2a
- 501- 4 FAX HEADFULL #3: US POPULATION DENSITY 50290 STU 2:46  
 Fax wonders how crowded humans are. He considers the population of the U.S. and then population density.
- GOAL 1: A C GOAL 2: GOAL 3: A2 B5 PS:
- 501- 5 PAULINE #4 50690 ANI 2:41  
 Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.
- GOAL 1: C GOAL 2: A1 A2 B4 C2c D2 GOAL 3: A6 B1 D1 PS: X  
 D3
- 501- 6 MATHNET-CASE OF THE MYSTERY WEEKEND-1 50021 NET 9:51  
 George & Pat go on a mystery weekend as Sherlock Condo & Dr. Whatzit. They use a map to estimate their travel time. They meet the six other guests. One is missing from dinner. A scream is heard.
- GOAL 1: A GOAL 2: A1 B2 B3 C1a GOAL 3: B4 B5 C3 PS: X  
 C2c G4

# SQUARE ONE TV RUNDOWNS

501- 7 LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

502- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

502- 2 GENERAL MATHPITAL: TWO SQUARES FROM ONE 50550 STU 4:58  
A square must be operated on to create two smaller squares of equal area. After several failures the doctors cut the square along its two diagonals to form 4 right triangles which they fit together.

GOAL 1: A C GOAL 2: A1 B4 C1b C1e GOAL 3: C4 G6 PS: X  
D3

502- 3 SNEAKY PEEKS #3: THE ADDING FAMILY 50130 STU 7:23  
Suspicia & Lopez Adding must add the numbers 1 to 100 in 3 minutes to save their children. Suspicia adds the numbers in pairs, one from the beginning and one from the end, for 50 times 101.

GOAL 1: A GOAL 2: A1 A3 B4 C2c D3 GOAL 3: B1 B3 D2 PS: X  
F2

502- 4 CAREERS PSA #2 (CHEF) 43290 LAF 0:32  
The song says "In every occupation, wherever you may go, you gotta know math" while the pictures show a chef, helicopter pilot, vet, dancer, artist, coast guardsman, & a recording technician at work.

GOAL 1: A C GOAL 2: GOAL 3: PS:

502- 5 MATHNET-CASE OF THE MYSTERY WEEKEND-2 50022 NET 13:56  
George & Pat discover that the first guest has disappeared from the red room. All retire to their color-coded rooms until a scream is heard. The guest in the orange room has also disappeared!

GOAL 1: GOAL 2: A1 B3 GOAL 3: PS: X

# SQUARE ONE TV RUNDOWNS

502- 6 LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

503- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

503- 2 NUMBERMAN #3 (PT. 1): PALINDROMES 50590 STU 6:00  
 Dave tells Paul about perfect numbers, like 6. Stella D'Orla challenges Dave to a wastepaperbasketball game where the object is to get the highest score that is a palindrome.

GOAL 1: B C GOAL 2: GOAL 3: A2 B2 PS:

503- 3 GROWN-UPS: MARV ALBERT 40660 STU 0:34  
 A child actor plays a young Marv Albert, the sportscaster, explaining why he will need math in the future.

GOAL 1: A C GOAL 2: GOAL 3: PS:

503- 4 NUMBERMAN #3 (PT. 2): ALICIA (ANSWER 7) 50640 STU 3:56  
 Alicia Taiping shows Dave and Paul a number trick that will always give the answer 7. She uses post-its to show that it will work for any number.

GOAL 1: B C GOAL 2: GOAL 3: B1 B2 D2 PS:  
 D4

503- 5 FAX HEADFULL #1: AVERAGE FOOD 50270 STU 2:33  
 Fax Headfull quotes statistics on the average number of hot dogs, donuts, etc. consumed by Americans in a year. He makes sense of this data by figuring how much each person eats.

GOAL 1: A C GOAL 2: GOAL 3: C2 C3 F2 PS:

# SQUARE ONE TV RUNDOWNS

503- 6 MATHNET-CASE OF THE MYSTERY WEEKEND-3 50023 NET 14:25  
Pat & George analyze the lines of sight from each room to see who could not be doing the kidnapping. They look for common features among the guests. Peeved, the butler, is knocked out.

GOAL 1: A GOAL 2: A1 B1 B3 B4 C1a GOAL 3: G1 G6 PS: X  
C3a

503- 7 SHORT CLOSE 50781 MIS 0:42

GOAL 1: GOAL 2: GOAL 3: PS:

504- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

504- 2 NOBODY'S INN #3: SAILS TAX 50190 STU 5:33  
Nobody argues with a customer over the fairest way to calculate their bill: take off discount, then add surcharge, or the other way around. Jane shows that both ways yield the same result.

GOAL 1: A C GOAL 2: A1 B4 D3 D4 GOAL 3: A5 B1 PS: X

504- 3 INSERT: JULIE BROWN-MENTAL TOOL-1B 40204 BUM 0:11  
"This is downtown Julie Brown with a word of advice for you. Mathematics, it's a mental tool, use your head, it's supercool." (yellow/green(blue?) patterned background)

GOAL 1: A GOAL 2: GOAL 3: G6 PS:

504- 4 SNEAKY PEEKS #5: CATMAN 50150 STU 8:12  
The Rhymester plants a stinkbomb which can only be defused by opening 3 combination locks. He gives Catman & Kitty clues to the combinations, but they must open the last one by themselves.

GOAL 1: A C GOAL 2: A1 B4 C2a C2c GOAL 3: B2 B3 D2 PS: X  
C3a F2

# SQUARE ONE TV RUNDOWNS

504- 5 FAX HEADFULL INSERT #5: BUZZSAW 50390 BUM 0:14  
Fax Headfull tells the viewer, "Math is like a buzzsaw.  
'Cuz it's a power tool. It can help you rip right  
through problems."

GOAL 1: A GOAL 2: GOAL 3: PS:

504- 6 MATHNET-CASE OF THE MYSTERY WEEKEND-4 50024 NET 13:15  
Pat & George discover patterns in the times and room  
colors of the disappearing guests. They predict the  
next guest to disappear. They are correct, but then the  
last two guests disappear too.

GOAL 1: GOAL 2: A1 B1 B3 B4 C1a C3a GOAL 3: PS: X

504- 7 SHORT CLOSE 50781 MIS 0:42

GOAL 1: GOAL 2: GOAL 3: PS:

505- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

505- 2 MATHCOURT: COMBINATORICS 50500 STU 5:12  
Prosecutor claims that only 10 x 9 different double-dip  
cones can be made from 10 flavors of ice cream.  
Defendant points out that he failed to count two scoops  
of the same flavor.

GOAL 1: C GOAL 2: A1 B4 C1e C4a GOAL 3: E1 PS: X

505- 3 NUMBERMAN #6 (PT. 2): ALICIA (GRID) 50650 STU 3:36  
Alicia Taiping shows David Numberman a number trick. He  
picks one number from each row and column of a 5x5 grid  
of the numbers 1 to 25. The sum is always 65.

GOAL 1: B C GOAL 2: GOAL 3: B1 D2 PS:

# SQUARE ONE TV RUNDOWNS

- 505- 4 MATHNET-CASE OF THE MYSTERY WEEKEND-5 50025 NET 17:10  
George paces off the dimensions of his room & compares them to the floor plan. They discover doors between closets, then hypothesize connectedness of the rooms & find secret passages & stairs.
- GOAL 1: A C GOAL 2: A1 B1 B3 C1a C3a C4a C4b GOAL 3: C1 G1 G4 G7 PS: X
- 505- 5 SHORT CREDIT CLOSE 50782 MIS 2:09
- GOAL 1: GOAL 2: GOAL 3: PS:
- 506- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 506- 2 ZOOK & ALISON #4: STONEHENGE 50100 ANI 6:47  
Zook & Alison must find Uncle Wilt at Stonehenge. They land in Japan and must find the shortest route from there to England. They plan their route on a flat map, then find a shorter one on a globe.
- GOAL 1: A C GOAL 2: A1 B3 B4 C1a C2c C4a D2 GOAL 3: B5 C3 G4 PS: X
- 506- 3 FAX HEADFULL #2: ELECTION STATISTICS 50280 STU 2:35  
Fax considers his chances of winning an election for President to be slim because the taller candidate won in 8 out of the last 10 elections. He realizes that this wasn't a large enough sample.
- GOAL 1: A C GOAL 2: GOAL 3: F1 F4 F5 PS:
- 506- 4 SNEAKY PEEKS #2: NED & ED 50120 STU 7:44  
Ned & Ed call on Einstein to help them find a quick way to count a large number of widgets. They count out a few, weigh them, and use a proportion to find the total number from the total weight.
- GOAL 1: A C GOAL 2: A1 B3 C2c D3 GOAL 3: B5 C1 F2 PS: X

# SQUARE ONE TV RUNDOWNS

- 506- 5 MATHMAN: HEXAGONS 20140 ANI 1:21  
Mathman plays a video game in which he must eat all polygons which are hexagons.
- GOAL 1: C GOAL 2: GOAL 3: G6 PS:
- 506- 6 MATHNET-CASE OF THE SMART DUMMY-1 50231 NET 8:52  
A dummy, Charlie, reports to Mathnetters that his ventriloquist, Edgar, went into shock when he discovered the second dummy was missing. They use trial & error to open a locked case & find money!
- GOAL 1: A GOAL 2: A1 B6 C4b GOAL 3: E1 PS: X
- 506- 7 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 507- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 507- 2 NUMBERMAN #5 (PT. 1): COUNTING DOG 50610 STU 3:38  
As a smart pet trick, Dave has a counting dog on the show. The dog solves two problems correctly, then Dave asks him to do  $653 \times 7091$ . He won't finish for 50 days!
- GOAL 1: B C GOAL 2: GOAL 3: A5 B2 PS:
- 507- 3 GROWN-UPS: LAWRENCE TAYLOR 40640 STU 0:45  
A child actor plays Lawrence Taylor, the football player, explaining why he will need math in the future.
- GOAL 1: A C GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

NUMBERMAN #5 (PT. 2): IRISH SKI TEAM 50611 STU 5:14

Dave's guest is Sean-Claude Kelly, the Irish ski team. She complains that her last race should have been a tie because her time was only 69 hundredths of a second less than the winner's.

GOAL 1: A C GOAL 2: A1 B1 B4 C2c D1 GOAL 3: A4 B5 C2 PS:

POS-NEG JOUST: PARATROOPERS +5 PLUS -3 15294 ANI 0:21

When five "positive" clay-mation creatures parachute onto three "negative" creatures, two "positive" creatures remain.

GOAL 1: A GOAL 2: GOAL 3: A6 B1 PS:

PAULINE #3 50680 ANI 2:30

Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.

GOAL 1: C GOAL 2: A1 A2 B4 C2c D3 GOAL 3: A6 B1 D1 PS: X

BIG NUMBERS - MILLION 30420 ANI 0:23

This segment shows the numeral for one million and tells the viewer that it takes a clock about eleven and a half days to tick off one million seconds.

GOAL 1: GOAL 2: GOAL 3: A2 B4 PS:

MATHNET-CASE OF THE SMART DUMMY-2 50232 NET 14:01

Pat and George learn about claim checks from the airline. They try tracing the owner of the case by making Hamiltonian circuits joining the cities that the case visited. Why hasn't the owner called?

GOAL 1: A B GOAL 2: A1 B3 B6 C1b GOAL 3: E1 G7 PS: X  
C2c C4a C4b D2

LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

- 508- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 508- 2 NOBODY'S INN #4: MEALS AND DEALS 50200 STU 7:46  
 Nobody tries to promote the Inn by claiming that Antoine can make over 100 different five-course meals. Antoine uses combinatorics to do so using just 14 dishes.
- GOAL 1: A C GOAL 2: A1 A3 B4 C2c GOAL 3: E1 PS: X
- 508- 3 INFINITY - THERE IS NO END 31110 SON 3:27  
 This song uses several examples of large numbers to illustrate that infinity is not a large number. Several patterns for building sequences of whole numbers are used to suggest infinite sequences.
- GOAL 1: B GOAL 2: GOAL 3: A1 B2 D1 PS:  
 D2
- 508- 4 NUMBERMAN #3 (PT. 2): ALICIA (ANSWER 7) 50640 STU 3:56  
 Alicia Taiping shows Dave and Paul a number trick that will always give the answer 7. She uses post-its to show that it will work for any number.
- GOAL 1: B C GOAL 2: GOAL 3: B1 B2 D2 PS:  
 D4
- 508- 5 MATHNET-CASE OF THE SMART DUMMY-3 50233 NET 9:22  
 Pat and George visit Charlie and Edgar's agent where they get a copy of the itinerary of their last trip. They notice that the bands holding the stacks of money show the names of the same cities!
- GOAL 1: C GOAL 2: A1 B1 B3 GOAL 3: A5 PS: X
- 508- 6 LONG CLOSE 50780 MIS 0:56
- GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

- 509- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 509- 2 ZOOK & ALISON #3: SPA BRAVO 50090 ANI 6:22  
 Zook & Alison must find Uncle Wilt at a city that is equidistant from 3 other cities in Italy. They construct the intersection of the perpendicular bisectors between two pairs of the cities.
- GOAL 1: A C GOAL 2: A1 B1 B3 B4 C1a C2a C2c D1 GOAL 3: C2 G6 PS: X
- 509- 3 MATHMAN: SYMMETRY 20180 ANI 1:36  
 Mathman plays a video game in which he must eat all polygons which have a line of symmetry.
- GOAL 1: C GOAL 2: GOAL 3: G2 PS:
- 509- 4 FAX HEADFULL INSERT #2: GEO. WELLROUND 2 50371 BUM 0:12  
 Fax Headfull tells the viewer that, "I used to be terribly square ... then I learned geometry and now I'm cool."
- GOAL 1: C GOAL 2: GOAL 3: PS:
- 509- 5 MATHCOURT: 8 FOOT CLOCK 50470 STU 4:25  
 Prosecutor argues that an 8' tall clock will fit in a room that is 8'1" high. Defendant demonstrates that the diagonal measurement of rectangular clock is the crucial measurement to check.
- GOAL 1: C GOAL 2: A1 B4 C1b C1e GOAL 3: G6 PS: X
- 509- 6 DIVISION OF: PATTERNS 40750 ANI 0:43  
 The marching band at a half-time show forms patterns on the playing field. "Brought to you by geometry"
- GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

- 509- 7 MATHNET-CASE OF THE SMART DUMMY-4 50234 NET 14:11  
 Charlie and Edgar are arrested because robberies occurred in each of the cities on their trip! Grecco makes a Hamiltonian of their route. The D.A. announces that the money is counterfeit.
- GOAL 1: A C GOAL 2: A1 B1 B3 C1b C3a GOAL 3: G7 PS: X
- 509- 8 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 510- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 510- 2 PAULINE #2 50670 ANI 2:54  
 Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.
- GOAL 1: C GOAL 2: A1 A2 B4 C2c D2 D3 GOAL 3: A6 B1 D1 PS: X
- 510- 3 GENERAL MATHPITAL: TRIANGLE 50540 STU 4:48  
 The Mathpital team must create a triangle from a line segment by cutting it into three pieces. They discover that each piece must be longer than the combined length of the other two.
- GOAL 1: A C GOAL 2: A1 B4 C1e D2 GOAL 3: G6 PS: X
- 510- 4 FAX HEADFULL #6: WORLD POPULATION 50320 STU 3:06  
 Fax is curious about the world's population, 5.3 billion. It would take about 200 years to count that high. If the population kept growing at its present rate, it would double every forty years.
- GOAL 1: C GOAL 2: GOAL 3: A2 B5 D2 PS: F5 F6

# SQUARE ONE TV RUNDOWNS

**LATHNET-CASE OF THE SMART DUMMY-5** 50235 NET 14:48  
 Lathnetters compare the Hamiltonians of routes taken by the case and by Charlie & Edgar; they are very close. A check of passenger lists finds Snerd & Nosebleed, competitors of Charlie & Edgar.

GOAL 1: A GOAL 2: A1 B3 C1b C3a GOAL 3: A5 PS: X  
 C4b

**LONG CREDIT CLOSE** 50783 MIS 2:23

GOAL 1: GOAL 2: GOAL 3: PS:

**SEASON FIVE OPENING** 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

**NUMBERMAN #4: COMPOUND INTEREST** 50600 STU 6:52  
 Make-up artist, Stella D'Ora, reminds Dave that he borrowed \$3.95 from her ten years ago. Compounded at 12% per year, he now owes her \$12.22.

GOAL 1: C GOAL 2: GOAL 3: A5 B1 D2 PS:  
 F6

**RULES OF THUMB** 50260 SON 4:03  
 Kid'n Play rap about estimating the area of the floor in their new place. They try several rules of thumb (quarter, human foot, arm span) before they find one that is convenient.

GOAL 1: A C GOAL 2: A1 B2 B3 C1E D1 GOAL 3: B4 C1 C2 PS: X  
 D3 C3 C4

**PAX HEADFULL #7: CARS** 50330 STU 2:31  
 Pax Headfull tells us that there are about 150 million cars in the U.S., or about 1 2/3 cars per person. He compares this to 1 car in China to 5000 people.

GOAL 1: C GOAL 2: GOAL 3: A2 A3 B5 PS:  
 F5

# SQUARE ONE TV RUNDOWNS

- 511- 5 MATHNET: OFF THE RECORD-1 50011 NET 14:00  
 Music producer Carol Devilbus compares graphs of sales over time for recent hits with sales of older hits. She is concerned that her company, OffThe Record, is falsely boosting ratings and sales.
- GOAL 1: A GOAL 2: A1 B3 C1d C2a GOAL 3: F6 PS: X  
 C3a
- 511- 6 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 512- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 512- 2 SNEAKY PEEKS #4: CODEBUSTERS 50140 STU 7:22  
 The Codebusters are called in to break a spell cast on a drama critic. They unravel a coded message of letters and numbers to free the critic from a vengeful ghost.
- GOAL 1: A GOAL 2: A1 A2 B6 C1c GOAL 3: D2 F2 PS: X  
 C4b
- 512- 3 PERSON ON THE STREET: COMBINATORICS 13007 IAF 1:08  
 The Person on the Street Interviewer asks various people to define combinatorics.
- GOAL 1: C GOAL 2: GOAL 3: E1 PS:
- 512- 4 NOBODY'S INN #5: WHOLE LOTTA SHAKIN' 50210 STU 7:06  
 Nobody tries to figure the number of handshakes with 20 people using a chart. Jane and Antoine find a faster way by looking at a simpler problem and discovering a pattern.
- GOAL 1: A C GOAL 2: A1 B4 C1c C2b GOAL 3: B1 D1 D2 PS: X  
 C3a D3 D4 E3

# SQUARE ONE TV RUNDOWNS

- 512- 5 MATHMAN: MULTIPLES OF 6 15680 ANI 0:57  
Mathman plays a video game in which he must eat only multiples of 6.
- GOAL 1: C GOAL 2: GOAL 3: B2 PS:
- 512- 6 FAX HEADFULL INSERT #3: WORKING TOGETHER 50360 BUM 0:12  
Fax Headfull tells the viewer, "When you're solving a problem, try working together ... "
- GOAL 1: GOAL 2: GOAL 3: PS:
- 512- 7 MATHNET: OFF THE RECORD-2 50012 NET 10:44  
Mathnetters investigate & rule out payola. Benny charts sales of a sample of industry-wide hits which confirms Carol Devilbus' observations. The three decide to go undercover in music biz.
- GOAL 1: A GOAL 2: A1 B1 B3 C1d GOAL 3: F6 PS: X  
C2a C3a C4a
- 512- 8 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 513- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 513- 2 ZOOK & ALISON #1: THE CONCERT 50070 ANI 7:06  
Zook & Alison must find Uncle Wilt at a rock concert in Boston. They use a map to figure the distance in miles, then use their zotometers to find the number of zots in 1 mile, and estimate the time.
- GOAL 1: A C GOAL 2: A1 A3 B3 B4 C1a GOAL 3: B5 C3 G4 PS: X  
C1e C2c

# SQUARE ONE TV RUNDOWNS

- 513- 3 MATHCOURT: FENCE 50520 STU 4:45  
 The prosecutor hired the defendant to build the largest possible rectangular pen using 300 meters of fence expecting a 75x75 square pen. The defendant's solution encloses larger rectangular area.
- GOAL 1: C GOAL 2: A1 B4 C1b C4a D3 GOAL 3: C2 PS: X
- 513- 4 MICHIGAN STADIUM: P'PONG BALLS (24 BILL) 30510 LAF 1:36  
 The following question is posed to the viewer: How many ping-pong balls would it take to fill the Michigan Stadium to the top?
- GOAL 1: GOAL 2: A1 C1e GOAL 3: C2 C3 PS: X
- 513- 5 MATHNET: OFF THE RECORD-3 50013 NET 13:26  
 Benny notices that none of OffThe's hits were composed by the same artist. P&G meet Carol's boss, Morris Norris. Later, Grecco shows P&G the Gerfner Ratings -- sales of P&G's song are taking off!
- GOAL 1: GOAL 2: A1 B1 B3 C1c C4b GOAL 3: F5 PS: X
- 513- 6 LONG CLOSE 50780 MIS 0:56
- GOAL 1: GOAL 2: GOAL 3: PS:
- 514- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 514- 2 PAULINE #1 50660 ANI 2:49  
 Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.
- GOAL 1: C GOAL 2: A1 A2 B2 B4 D2 GOAL 3: A6 B1 D1 PS: X

# SQUARE ONE TV RUNDOWNS

- 514- 3 NUMBERMAN #1 (PT. 1): EXPONENTIAL GROWTH 50570 STU 4:40  
David Numberman's guest is a billionaire who made her money by working for one month as a waitress. She got her boss to pay her \$1 on the first day, and then to double her pay each day after that.
- GOAL 1: C GOAL 2: GOAL 3: D2 PS:
- 514- 4 GROWN-UPS: JOAN RIVERS 43100 STU 1:04  
A child actor plays a young Joan Rivers, talk show hostess, explaining why she will need math in the future.
- GOAL 1: A C GOAL 2: GOAL 3: PS:
- 514- 5 NUMBERMAN #1 (PT. 2): ALICIA (AGE) 50630 STU 4:22  
Alicia Taiping shows Dave and Paul a number trick which you can use to figure out someone's age. It works for finding any secret number.
- GOAL 1: B C GOAL 2: GOAL 3: B1 D2 PS:
- 514- 6 THAT'S MATH 40560 SON 3:30  
Hines sings about the mathematics of a pizza bill, baseball statistics, hitting a target, and dancing.
- GOAL 1: A C GOAL 2: GOAL 3: A5 B1 F1 PS:  
F2 F4
- 514- 7 MATHNET: OFF THE RECORD-4 50014 NET 11:09  
P&G's song moves to number 3! The What tell Mathnetters they made almost no money on their hit. P&G notice patterns in the first week's sales data of OffThe's hits and in the production data.
- GOAL 1: A GOAL 2: A1 B2 B3 B4 C1c GOAL 3: B2 F5 F6 PS: X  
C1d C3a
- 514- 8 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

515- 1 SEASON FIVE OPENING

50770 MIS 0:38

GOAL 1:

GOAL 2:

GOAL 3:

PS:

515- 2 GENERAL MATHPITAL: DOUBLE AREA

50560 STU 5:28

The doctors have to double the area of a rectangle. They plan their operation by drawing rectangles on a grid. After one failed attempt, they find several solutions.

GOAL 1: A C

GOAL 2: A1 B4 C1a D2

GOAL 3: C2 D2

PS: X

515- 3 FAX HEADFULL #8: HANDEDNESS

50340 STU 3:03

Fax Headfull ponders statistics on left-handed baseball pitchers. Left-handed people make up about 10% of the world's population, or about 530 million people!

GOAL 1: C

GOAL 2:

GOAL 3: A2 F5

PS:

515- 4 MATHNET: OFF THE RECORD-5

50015 NET 16:55

Mathnetters visit Gerns & find patterns in first 3 weeks' sales of OffThe hits. They also find discrepancies in regional sales data & combined sales. P&G unravel the mystery to trap Morris Norris.

GOAL 1: A C

GOAL 2: A1 B1 B3 B4 C1c  
C1d C2a C3a C4

GOAL 3: B2 F6

PS: X

515- 5 LONG CREDIT CLOSE

50783 MIS 2:23

GOAL 1:

GOAL 2:

GOAL 3:

PS:

516- 1 SEASON FIVE OPENING

50770 MIS 0:38

GOAL 1:

GOAL 2:

GOAL 3:

PS:

# SQUARE ONE TV RUNDOWNS

516- 2 SNEAKY PEEKS #6: GORILLAS IN OUR MIDST 50160 STU 7:55  
 Anchorman reports 132 gorillas on the loose in NYC and shows a map with the locations of the sightings reported. Dr. Fossil examines the data and asks more questions to find there was only one ape!

GOAL 1: A C GOAL 2: A1 B3 C1a C2a GOAL 3: F2 F5 PS: X  
 C3b D1

516- 3 YOU CALL THE ANGLE 3 -- 180 (U RAMP) 30700 LAF 0:54  
 A skateboarder demonstrates a turn and the viewer is asked to determine the angle of rotation.

GOAL 1: C GOAL 2: A1 B1 C1b C2a GOAL 3: G2 PS: X

516- 4 NOBODY'S INN #1: MEASURED STEPS 50170 STU 8:57  
 Jane asks Nobody to measure the stairs for new carpeting. He measures each step with many interruptions. She shows him how to use the projections of the height and depth of each step instead.

GOAL 1: A C GOAL 2: A1 B3 B4 C2c D1 GOAL 3: C2 C4 G2 PS: X  
 D3

516- 5 MATHNET-CASE OF THE BERMUDA TRIANGLE-1 50251 NET 9:40  
 Pat & George appear on the Donnawhy show during Math Awareness Week. They are followed by a sea captain named Queeg with stories of the Bermuda Triangle. A girl named Trudy says Queeg is lying!

GOAL 1: A GOAL 2: GOAL 3: PS:

516- 6 SHORT CLOSE 50781 MIS 0:42

GOAL 1: GOAL 2: GOAL 3: PS:

517- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

- 517- 2 MATHCOURT: AVERAGES 50510 STU 4:30  
 Prosecutor contends that team with higher average number of runs per game is the better team. Defendant counters that team with the most wins is the better team -- they are not the same.
- GOAL 1: C GOAL 2: A1 B3 C1c C3c GOAL 3: F2 F5 PS: X
- 517- 3 LESS THAN ZERO 14150 SON 2:04  
 This song presents a diving, dance, skating, and hammer-throw competition to show arithmetic realizations of negative numbers.
- GOAL 1: C GOAL 2: GOAL 3: A6 D1 PS:
- 517- 4 PAULINE #1 50660 ANI 2:49  
 Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.
- GOAL 1: C GOAL 2: A1 A2 B2 B4 D2 GOAL 3: A6 B1 D1 PS: X
- 517- 5 IF IT'S OUT THERE: SHOPPER (WATERMELON) 43050 LAF 1:02  
 Watermelons cost \$1.00 each, so with 75 cents a customer gets 3/4 of a watermelon. The remaining 1/4 watermelon goes to a young girl who gives a quarter to the resourceful cashier.
- GOAL 1: A C GOAL 2: A1 B1 B2 B4 C1e C4a D4 GOAL 3: A3 B5 C2 C3 PS: X
- 517- 6 DICK & VERN: PENCIL & PAPER QUIZ SHOW 44100 ANI 0:42  
 Dick and Vern tell the viewer to get pencil and paper so they can play along with "But Who's Counting?"
- GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

517- 7 BUT WHO'S COUNTING?: LARGEST SUM 8/1 43110 GAM 2:29  
 Players arrange four randomly chosen numbers on their boards to form the largest sum of two fractions. To play, they apply understanding of probability and fractions.

GOAL 1: A C GOAL 2: A1 B2 B4 C1b GOAL 3: A3 B4 D1 PS: X  
 C2a C2c F4

517- 8 MATHNET-CASE OF THE BERMUDA TRIANGLE-2 50252 NET 13:39  
 Trudy explains how she used maps and other clues to search for a ship which sank during the Revolutionary War. The Mathnetters go to Bermuda with her to try another possible site.

GOAL 1: A C GOAL 2: A1 B1 B4 B6 C1a GOAL 3: G4 G6 PS: X  
 C4a C4b D1 D2

517- 9 LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

518- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

518- 2 GENERAL MATHPITAL: ROUNDING 50530 STU 5:20  
 The doctors must decide whether to round the number 6.4931 up to the prime number 7 or down to the perfect number 6. They decide to leave it at its exact value.

GOAL 1: C GOAL 2: A1 B2 D1 GOAL 3: A3 B2 B4 PS: X

518- 3 MATHMAN: QUADRILATERALS 20130 ANI 1:25  
 Mathman plays a video game in which he must eat all polygons which are quadrilaterals.

GOAL 1: C GOAL 2: GOAL 3: G6 PS:

# SQUARE ONE TV RUNDOWNS

- 518- 4 NUMBERMAN #6 (PT. 1): THREE MINUTE MILE 50620 STU 5:25  
 Paul predicts that a 3 minute mile will be run in the year 2110 by extrapolating from a graph of the records for the mile run. Sportscaster Reggie Perfecta points out the flaws in Paul's reasoning.
- GOAL 1: A C GOAL 2: C1d C4a D1 D4 GOAL 3: F5 F6 PS:
- 518- 5 DIVISION OF: COIN TOSS 40740 ANI 0:20  
 A coin is tossed to determine which team starts the football game. "Brought to you by probability"
- GOAL 1: C GOAL 2: GOAL 3: PS:
- 518- 6 NUMBERMAN #6 (PT. 2): ALICIA (GRID) 50650 STU 3:36  
 Alicia Taiping shows David Numberman a number trick. He picks one number from each row and column of a 5x5 grid of the numbers 1 to 25. The sum is always 65.
- GOAL 1: B C GOAL 2: GOAL 3: B1 D2 PS:
- 518- 7 MATHNET-CASE OF THE BERMUDA TRIANGLE-3 50253 NET 10:46  
 Trudy & Mathnetters run into trouble at sea and abort their mission. Benny shows how a magnet could be used to manipulate a compass. Queeg gets the salvage rights for Trudy's estimated location.
- GOAL 1: GOAL 2: B1 B3 C4b GOAL 3: PS: X
- 518- 8 LONG CLOSE 50780 MIS 0:56
- GOAL 1: GOAL 2: GOAL 3: PS:
- 519- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

519- 2 ZOOK & ALISON #2: WHEEL OF DESTINY 50080 ANI 7:23  
 Zook & Alison must find Uncle Wilt in one of a chain of restaurants in L.A. They go to several asking if he's been seen, and narrow their choices by recording data about the chain in a Venn diagram.

GOAL 1: A C GOAL 2: A1 A3 B3 B6 C1a C2a GOAL 3: D1 F6 PS: X

519- 3 BIG NUMBERS - MILLION/ BILLION 30460 ANI 0:41  
 This segment compares the length of time it takes a clock to tick off one million and then one billion seconds.

GOAL 1: GOAL 2: GOAL 3: A2 B2 B4 PS:

519- 4 FAX HEADFULL #3: US POPULATION DENSITY 50290 STU 2:46  
 Fax wonders how crowded humans are. He considers the population of the U.S. and then population density.

GOAL 1: A C GOAL 2: GOAL 3: A2 B5 PS:

519- 5 WANNA BE 30140 SON 2:24  
 This is a song which points out that whatever one wants to be, one needs to know math.

GOAL 1: A C GOAL 2: GOAL 3: PS:

519- 6 MATHNET-CASE OF THE BERMUDA TRIANGLE-4 50254 NET 13:55  
 Queeg reveals on Donnawhy's show that he found a sunken ship but none of the loot Trudy predicted. After a burglary of her place, Trudy tells P&G how she decoded the clues. Later she is nabbed!

GOAL 1: C GOAL 2: B1 B3 B6 C1a C4a C4b GOAL 3: PS: X

519- 7 LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

520- 1 SEASON FIVE OPENING

50770 MIS 0:38

GOAL 1:

GOAL 2:

GOAL 3:

PS:

520- 2 PAULINE #4

50690 ANI 2:41

Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.

GOAL 1: C

GOAL 2: A1 A2 B4 C2c D2  
D3

GOAL 3: A6 B1 D1

PS: X

520- 3 GENERAL MATHPITAL: DECIMAL POINT

40480 STU 3:12

In a delicate and important operation, doctors show that the location of a decimal point has a significant effect on the magnitude of the number that a numeral represents.

GOAL 1: C

GOAL 2: A1 B3 C2a D2

GOAL 3: A4

PS: X

520- 4 FAX HEADFULL INSERT #7: MIND STRETCHING

50410 BUM 0:33

Fax Headfull tells the viewer, "Math stretches your mind."

GOAL 1:

GOAL 2:

GOAL 3:

PS:

520- 5 MATHNET-CASE OF THE BERMUDA TRIANGLE-5

50255 NET 19:25

The Mathnetters use anagrams, poems, and several maps to unravel this complicated mystery. They save Trudy, catch the villain, and find the ship.

GOAL 1: A

GOAL 2: B1 B3 B4 C1a  
C3c C4a C4b D1

GOAL 3: G4 G6

PS: X

520- 6 SHORT CREDIT CLOSE

50782 MIS 2:09

GOAL 1:

GOAL 2:

GOAL 3:

PS:

# SQUARE ONE TV RUNDOWNS

521- 1 SEASON FIVE OPENING

50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

521- 2 SNEAKY PEEKS #3: THE ADDING FAMILY 50130 STU 7:23  
Suspicia & Lopez Adding must add the numbers 1 to 100 in 3 minutes to save their children. Suspicia adds the numbers in pairs, one from the beginning and one from the end, for 50 times 101.

GOAL 1: A GOAL 2: A1 A3 B4 C2c D3 GOAL 3: B1 B3 D2 PS: X  
F2

521- 3 IF IT'S OUT THERE: CHEF (POPOVER) 43080 LAF 1:17  
A home cook follows the instructions of a tv chef, but uses a tablespoon of baking powder instead of a teaspoon, so his popover comes out unusually large.

GOAL 1: A C GOAL 2: GOAL 3: C1 PS:

521- 4 ZOOK & ALISON #4: STONEHENGE 50100 ANI 6:47  
Zook & Alison must find Uncle Wilt at Stonehenge. They land in Japan and must find the shortest route from there to England. They plan their route on a flat map, then find a shorter one on a globe.

GOAL 1: A C GOAL 2: A1 B3 B4 C1a GOAL 3: B5 C3 G4 PS: X  
C2c C4a D2

521- 5 FAX HEADFULL #1: AVERAGE FOOD 50270 STU 2:33  
Fax Headfull quotes statistics on the average number of hot dogs, donuts, etc. consumed by Americans in a year. He makes sense of this data by figuring how much each person eats.

GOAL 1: A C GOAL 2: GOAL 3: C2 C3 F2 PS:

521- 6 MATHNET-CASE OF THE PIGGY BANKER-1 50241 NET 9:26  
Emmy Kelly's dad, Emit (a clown), is arrested for embezzlement of almost \$45,000 from the five branches of Bank of Legume. He was working at each branch at the time the money was missed.

GOAL 1: A GOAL 2: A1 B3 C1c GOAL 3: PS: X

# SQUARE ONE TV RUNDOWNS

521- 7 SHORT CLOSE 50781 MIS 0:42

GOAL 1: GOAL 2: GOAL 3: PS:

522- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

522- 2 RULES OF THUMB 50260 SON 4:03

Kid'n Play rap about estimating the area of the floor in their new place. They try several rules of thumb (quarter, human foot, arm span) before they find one that is convenient.

GOAL 1: A C GOAL 2: A1 B2 B3 C1E D1 GOAL 3: B4 C1 C2 PS: X  
D3 C3 C4

522- 3 NUMBERMAN #2 (PT. 1): PRIME NUMBERS 50580 STU 3:38

It is Dave's 41st birthday -- a prime number. A chimp picks the banana labeled with a prime number.

GOAL 1: B C GOAL 2: GOAL 3: B2 PS:

522- 4 GROWN-UPS: ROBIN LEACH 40670 STU 0:54

A child actor plays a young Robin Leach, host of "Lifestyles of the Rich and Famous", explaining why he will need math in the future.

GOAL 1: A C GOAL 2: GOAL 3: PS:

522- 5 NUMBERMAN #2 (PT. 2): PRIME NUMBERS 50581 STU 4:45

Dave's guest is Polumbo, Prime Investigator. Polumbo helps Dave and Paul determine that 61 is indeed prime.

GOAL 1: C GOAL 2: A1 A3 B4 B6 C2c GOAL 3: B2 PS: X  
D1

# SQUARE ONE TV RUNDOWNS

522- 6 PAULINE #3 50680 ANI 2:30  
Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.

GOAL 1: C GOAL 2: A1 A2 B4 C2c D3 GOAL 3: A6 B1 D1 PS: X

522- 7 MATHNET-CASE OF THE PIGGY BANKER-2 50242 NET 11:01  
Pat & George check out other possible suspects. Later, they discover that the amounts of money missing by month are all multiples of nine and begin to correlate days off with dates money was missed.

GOAL 1: A GOAL 2: B3 C1c C3a C4b GOAL 3: B2 PS: X

522- 8 LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

523- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

523- 2 NOBODY'S INN #6: PLAYING THE PERCENTAGES 50220 STU 7:10  
Nobody tries to turn negative survey results about the popularity of the Inn into positive ones. Twice as many prefer Nobody's Inn over others, but 90% of the voters wouldn't return to the state!

GOAL 1: C GOAL 2: GOAL 3: A5 B5 F6 PS:

523- 3 MATHMAN: MULTIPLES OF 3 15630 ANI 1:21  
Mathman plays a video game in which he must eat only multiples of 3.

GOAL 1: C GOAL 2: GOAL 3: B2 PS:

# SQUARE ONE TV RUNDOWNS

- 523- 4 BEAZLEY & THE NUMBERS: 7 30830 ANI 1:43  
 Beazley is shown a list of eight numbers. He asks 3 questions, each reducing the list by half, to find the secret number.
- GOAL 1: C GOAL 2: A1 B3 C1c C2c GOAL 3: A3 B2 PS: X  
 C3c
- 523- 5 NINES 15870 SON 2:34  
 The cast sings a country music tune expressing the idea that the sum of the digits of any multiple of 9 always add up to 9 or a multiple of 9.
- GOAL 1: B C GOAL 2: GOAL 3: B2 D2 B1 PS:
- 523- 6 MATHNET-CASE OF THE PIGGY BANKER-3 50243 NET 13:54  
 Emmy & Mathnetters discover that amounts missing by day are multiples of 90 -- maybe \$100 bills are being switched with \$10 bills. Of the three suspects, only Emit's days off match robbery dates!
- GOAL 1: A C GOAL 2: B3 C1c C3a C4b GOAL 3: B2 PS: X
- 523- 7 LONG CLOSE 50780 MIS 0:56
- GOAL 1: GOAL 2: GOAL 3: PS:
- 524- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 524- 2 MATHCOURT: EMBEDDED SQUARES 50490 STU 4:55  
 Prosecutor argues that an 8x8 grid contains only 64 squares. Defendant demonstrates that there are 204 squares of different sizes embedded in this grid.
- GOAL 1: C GOAL 2: A1 B4 C1b C1E GOAL 3: G6 D2 PS: X  
 C4a

SQUARE ONE TV RUNDOWNS

- 524- 3 DIRK NIBLICK: TAKE TWO AND... 40060 ANI 9:27  
 Dirk is coaching the baseball team. On his computer he calls up statistics on the players, and uses this info to make decisions about whom to place where. Computers can't tell him everything, though.
- GOAL 1: A GOAL 2: A1 B3 B5 C1c GOAL 3: A5 F1 F2 PS: X  
 F4 F6
- 524- 4 PERSON ON THE STREET: RHOMBUS 13003 LAF 1:03  
 The Person On the Street interviewer asks a variety of people what a rhombus is.
- GOAL 1: C GOAL 2: GOAL 3: G6 PS:
- 524- 5 MATHNET-CASE OF THE PIGGY BANKER-4 50244 NET 11:53  
 Pat & George consider theories about how the money could have been taken from the bank. George reconsiders the automatic teller machine; Grecco checks the bank in case the money was hidden there.
- GOAL 1: A C GOAL 2: B1 B3 C1c C3a GOAL 3: B2 PS: X  
 C4a C4b
- 524- 6 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 525- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 525- 2 ZOOK & ALISON #3: SPA BRAVO 50090 ANI 6:22  
 Zook & Alison must find Uncle Wilt at a city that is equidistant from 3 other cities in Italy. They construct the intersection of the perpendicular bisectors between two pairs of the cities.
- GOAL 1: A C GOAL 2: A1 B1 B3 B4 C1a GOAL 3: C2 G6 PS: X  
 C2a C2c D1

# SQUARE ONE TV RUNDOWNS

525- 3 GENERAL MATHPITAL: TWO SQUARES FROM ONE 50550 STU 4:58  
A square must be operated on to create two smaller squares of equal area. After several failures the doctors cut the square along its two diagonals to form 4 right triangles which they fit together.

GOAL 1: A C GOAL 2: A1 B4 C1b C1e D3 GOAL 3: C4 G6 PS: X

525- 4 FAX HEADFULL #8: HANDEDNESS 50340 STU 3:03  
Fax Headfull ponders statistics on left-handed baseball pitchers. Left-handed people make up about 10% of the world's population, or about 530 million people!

GOAL 1: C GOAL 2: GOAL 3: A2 F5 PS:

525- 5 MATHNET-CASE OF THE PIGGY BANKER-5 50245 NET 11:35  
Pat & George reexamine bank's report of missing amounts and reconsider theory that \$100 and \$10 bills were switched. They unravel the mystery and catch the villain.

GOAL 1: A C GOAL 2: B1 B2 B4 C3a C4a GOAL 3: B1 B2 PS: X

525- 6 SHORT CREDIT CLOSE 50782 MIS 2:09

GOAL 1: GOAL 2: GOAL 3: PS:

526- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

526- 2 PAULINE #2 50670 ANI 2:54  
Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.

GOAL 1: C GOAL 2: A1 A2 B4 C2c D2 D3 GOAL 3: A6 B1 D1 PS: X

# SQUARE ONE TV RUNDOWNS

- 526- 3 COUNT THE WAYS 40210 SON 3:33  
The Judds sing about how one of Wynonna's admirers expresses his affection in mathematical ways, telling her how many times his heart beats for her each minute, each hour, etc.
- GOAL 1: C GOAL 2: GOAL 3: B5 PS:
- 526- 4 MATHMAN: SQUARE NUMBERS #2 20050 ANI 1:18  
Mathman plays a video game in which he must eat all square numbers.
- GOAL 1: C GOAL 2: GOAL 3: B2 PS:
- 526- 5 SNEAKY PEEKS #5: CATMAN 50150 STU 8:12  
The Rhymester plants a stinkbomb which can only be defused by opening 3 combination locks. He gives Catman & Kitty clues to the combinations, but they must open the last one by themselves.
- GOAL 1: A C GOAL 2: A1 B4 C2a C2c C3a GOAL 3: B2 B3 D2 F2 PS: X
- 526- 6 BEAZLEY & THE NUMBERS: 1 - 9 PRIMES 30490 ANI 1:36  
Beazley is shown the list of whole numbers from 1 to 9. He checks the factors of each to determine which are prime numbers.
- GOAL 1: C GOAL 2: A1 B1 B4 C1c C2c GOAL 3: B2 PS: X
- 526- 7 MATHNET-CASE OF THE MYSTERY WEEKEND-1 50021 NET 9:51  
George & Pat go on a mystery weekend as Sherlock Condo & Dr. Whatzit. They use a map to estimate their travel time. They meet the six other guests. One is missing from dinner. A scream is heard.
- GOAL 1: A GOAL 2: A1 B2 B3 C1a C2c GOAL 3: B4 B5 C3 G4 PS: X
- 526- 8 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:

SQUARE ONE TV RUNDOWNS

527- 1	SEASON FIVE OPENING	50770	MIS	0:38
	GOAL 1:	GOAL 2:	GOAL 3:	PS:
527- 2	GENERAL MATHPITAL: TRIANGLE	50540	STU	4:48
	The Mathpital team must create a triangle from a line segment by cutting it into three pieces. They discover that each piece must be longer than the combined length of the other two.			
	GOAL 1: A C	GOAL 2: A1 B4 C1e D2	GOAL 3: G6	PS: X
527- 3	FAX HEADFULL INSERT #1: ALL AROUND US	50350	BUM	0:08
	Fax Headfull exhorts us that, "Math. It's all around us. Think about it."			
	GOAL 1:	GOAL 2:	GOAL 3:	PS:
527- 4	NOBODY'S INN #2: HEARTS OF SALARY	50180	STU	8:20
	Antoine asks for a raise. Nobody tries to fool him by giving him a 25% raise in hourly wage, but cutting hours; by adding extra weeks of unpaid vacation; and by paying him monthly rather than weekly.			
	GOAL 1: A C	GOAL 2: A1 B4 C2a	GOAL 3: A3 B5	PS: X
527- 5	MATHNET-CASE OF THE MYSTERY WEEKEND-2	50022	NET	13:56
	George & Pat discover that the first guest has disappeared from the red room. All retire to their color-coded rooms until a scream is heard. The guest in the orange room has also disappeared!			
	GOAL 1:	GOAL 2: A1 B3	GOAL 3:	PS: X
527- 6	LONG CLOSE	50780	MIS	0:56
	GOAL 1:	GOAL 2:	GOAL 3:	PS:

# SQUARE ONE TV RUNDOWNS

528- 1 SEASON FIVE OPENING

50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

528- 2 NUMBERMAN #3 (PT. 1): PALINDROMES

50590 STU 6:00

Dave tells Paul about perfect numbers, like 6. Stella D'Ora challenges Dave to a wastepaperbasketball game where the object is to get the highest score that is a palindrome.

GOAL 1: B C GOAL 2: GOAL 3: A2 B2 PS:

528- 3 CAREERS PSA #1 (BOTANIST)

43280 LAF 0:32

The song says "In every occupation, wherever you may go, you gotta know math" while the pictures show a botanist, sculptor, pediatrician, architect, hat maker, basketball coach & recording technician.

GOAL 1: A C GOAL 2: GOAL 3: PS:

528- 4 NUMBERMAN #3 (PT. 2): ALICIA (ANSWER 7)

50640 STU 3:56

Alicia Taiping shows Dave and Paul a number trick that will always give the answer 7. She uses post-its to show that it will work for any number.

GOAL 1: B C GOAL 2: GOAL 3: B1 B2 D2 PS:  
D4

528- 5 FAX HEADFULL #1: AVERAGE FOOD

50270 STU 2:33

Fax Headfull quotes statistics on the average number of hot dogs, donuts, etc. consumed by Americans in a year. He makes sense of this data by figuring how much each person eats.

GOAL 1: A C GOAL 2: GOAL 3: C2 C3 F2 PS:

528- 6 MATHNET-CASE OF THE MYSTERY WEEKEND-3

50023 NET 14:25

Pat & George analyze the lines of sight from each room to see who could not be doing the kidnapping. They look for common features among the guests. Peeved, the butler, is knocked out.

GOAL 1: A GOAL 2: A1 B1 B3 B4 C1a GOAL 3: G1 G6 PS: X  
C3a

# SQUARE ONE TV RUNDOWNS

528- 7	SHORT CLOSE	50781	MIS	0:42
	GOAL 1:	GOAL 2:	GOAL 3:	PS:
529- 1	SEASON FIVE OPENING	50770	MIS	0:38
	GOAL 1:	GOAL 2:	GOAL 3:	PS:
529- 2	MATHCOURT: SAMPLE BIAS Prosecutor contends that defendant is interfering with democracy by overrruling a survey. Defendant demonstrates that survey was biased by the exclusion of a certain group of voters.	50480	STU	5:02
	GOAL 1: C	GOAL 2: A1 B1 C4a D1	GOAL 3: F5	PS: X
529- 3	ZOOK & ALISON #1: THE CONCERT Zook & Alison must find Uncle Wilt at a rock concert in Boston. They use a map to figure the distance in miles, then use their zotometers to find the number of zots in 1 mile, and estimate the time.	50070	ANI	7:06
	GOAL 1: A C	GOAL 2: A1 A3 B3 B4 C1a C1e C2c	GOAL 3: B5 C3 G4	PS: X
529- 4	IF IT'S OUT THERE: TRAVEL AGENT Two customers wonder how their plane can leave New York at 4 pm & arrive in London at 4 pm. The travel agent points to a set of clocks indicating that there is a time difference between the cities.	43070	LAF	1:03
	GOAL 1: A C	GOAL 2:	GOAL 3: B1	PS:
529- 5	DIRKLET: MATHNET PROMO #2 Dirk promotes Mathnet which is coming along soon on Square One TV.	21240	ANI	0:40
	GOAL 1:	GOAL 2:	GOAL 3:	PS:

# SQUARE ONE TV RUNDOWNS

- 529- 6 MATHNET-CASE OF THE MYSTERY WEEKEND-4 50024 NET 13:15  
 Pat & George discover patterns in the times and room colors of the disappearing guests. They predict the next guest to disappear. They are correct, but then the last two guests disappear too.
- GOAL 1: GOAL 2: A1 B1 B3 B4 C1a GOAL 3: PS: X  
 C3a
- 529- 7 LONG CLOSE 50780 MIS 0:56
- GOAL 1: GOAL 2: GOAL 3: PS:
- 530- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 530- 2 PATTERNS 40470 SON 3:35  
 In this fast-paced song, "Weird Al" Yankovic sings about the repeating patterns that he sees everywhere: in his house, on his clothing, in music, in dance, in nature, etc.
- GOAL 1: B C GOAL 2: GOAL 3: G2 G3 G6 PS:
- 530- 3 DIVISION OF: PARABOLA 40780 ANI 0:35  
 A golf ball is hit, and its path has the shape of a parabola. The sports scene is replayed in slow motion. "Brought to you by geometry"
- GOAL 1: C GOAL 2: GOAL 3: G6 PS:
- 530- 4 NUMBERMAN #1 (PT. 2): ALICIA (AGE) 50630 STU 4:22  
 Alicia Taiping shows Dave and Paul a number trick which you can use to figure out someone's age. It works for finding any secret number.
- GOAL 1: B C GOAL 2: GOAL 3: B1 D2 PS:

# SQUARE ONE TV RUNDOWNS

530- 5 MATHNET-CASE OF THE MYSTERY WEEKEND-5 50025 NET 17:10  
George paces off the dimensions of his room & compares them to the floor plan. They discover doors between closets, then hypothesize connectedness of the rooms & find secret passages & stairs.

GOAL 1: A C GOAL 2: A1 B1 B3 C1a C3a C4a C4b GOAL 3: C1 G1 G4 G7 PS: X

530- 6 LONG CREDIT CLOSE 50783 MIS 2:23

GOAL 1: GOAL 2: GOAL 3: PS:

531- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

531- 2 TONY AND THE TOGAS 12100 SON 6:25  
A Phoenician singer finds himself recording a song in Rome and learns about Roman numerals in the process.

GOAL 1: GOAL 2: GOAL 3: A2 PS:

531- 3 DIRK NIBLICK: THE INQUISITION (PART I) 40031 ANI 3:58  
The police must locate a bank robber with information gleaned from an interview with the key witness, Beasley. Combinatorics eliminate some possible license numbers, but is there other relevant info?

GOAL 1: A GOAL 2: A1 B1 B3 B4 C1b C2b C3b C3c C4 GOAL 3: A1 B1 E1 E3 PS: X

531- 4 BIG NUMBERS - MILLION 30420 ANI 0:23  
This segment shows the numeral for one million and tells the viewer that it takes a clock about eleven and a half days to tick off one million seconds.

GOAL 1: GOAL 2: GOAL 3: A2 B4 PS:

SQUARE ONE TV RUNDOWNS

531- 5 DIRK NIBLICK: THE INQUISITION (PART II) 40032 PAR 3:43

GOAL 1: GOAL 2: GOAL 3: PS:

531- 6 PERSON ON THE STREET: TIME 31000 LAF 1:01  
People on the street are asked: It takes about 11 1/2 days for a clock to tick off one million seconds. How long does it take to tick off one billion seconds? One trillion?

GOAL 1: B C GOAL 2: A1 B2 GOAL 3: A1 B4 D1 PS: X

531- 7 PAULINE #1 50660 ANI 2:49  
Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.

GOAL 1: C GOAL 2: A1 A2 B2 B4 D2 GOAL 3: A6 B1 D1 PS: X

531- 8 MATHNET-CASE OF THE SMART DUMMY-1 50231 NET 8:52  
A dummy, Charlie, reports to Mathnetters that his ventriloquist, Edgar, went into shock when he discovered the second dummy was missing. They use trial & error to open a locked case & find money!

GOAL 1: A GOAL 2: A1 B6 C4b GOAL 3: E1 PS: X

531- 9 LONG CLOSE 50780 MIS 0:56

GOAL 1: GOAL 2: GOAL 3: PS:

532- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

SQUARE ONE TV RUNDOWNS

- 532- 2 GENERAL MATHPITAL: DOUBLE AREA 50560 STU 5:28  
 The doctors have to double the area of a rectangle.  
 They plan their operation by drawing rectangles on a  
 grid. After one failed attempt, they find several  
 solutions.
- GOAL 1: A C GOAL 2: A1 B4 C1a D2 GOAL 3: C2 D2 PS: X
- 532- 3 FAX HEADFULL #6: WORLD POPULATION 50320 STU 3:06  
 Fax is curious about the world's population, 5.3  
 billion. It would take about 200 years to count that  
 high. If the population kept growing at its present  
 rate, it would double every forty years.
- GOAL 1: C GOAL 2: GOAL 3: A2 B5 D2 PS:  
 F5 F6
- 532- 4 RULES OF THUMB 50260 SON 4:03  
 Kid'n Play rap about estimating the area of the floor in  
 their new place. They try several rules of thumb  
 (quarter, human foot, arm span) before they find one  
 that is convenient.
- GOAL 1: A C GOAL 2: A1 B2 B3 C1E D1 GOAL 3: B4 C1 C2 PS: X  
 D3 C3 C4
- 532- 5 DIVISION OF: MAPPING 40720 ANI 0:30  
 Using a map to find the way to the New World.  
 "Brought to you by geometry"
- GOAL 1: A C GOAL 2: GOAL 3: G4 PS:
- 532- 6 MATHNET-CASE OF THE SMART DUMMY-2 50232 NET 14:01  
 Pat and George learn about claim checks from the  
 airline. They try tracing the owner of the case by  
 making Hamiltonian circuits joining the cities that the  
 case visited. Why hasn't the owner called?
- GOAL 1: A B GOAL 2: A1 B3 B6 C1b GOAL 3: E1 G7 PS: X  
 C2c C4a C4b D2
- 532- 7 LONG CLOSE 50780 MIS 0:56
- GOAL 1: GOAL 2: GOAL 3: PS:

SQUARE ONE TV RUNDOWNS

533- 1 SEASON FIVE OPENING 50770 MIS 0:38

GOAL 1: GOAL 2: GOAL 3: PS:

533- 2 NUMBERMAN #5 (PT. 1): COUNTING DOG 50610 STU 3:38  
As a smart pet trick, Dave has a counting dog on the show. The dog solves two problems correctly, then Dave asks him to do  $653 \times 7091$ . He won't finish for 50 days!

GOAL 1: B C GOAL 2: GOAL 3: A5 B2 PS:

533- 3 IF IT'S OUT THERE: DIRECTOR 43060 LAF 1:05  
A movie actress must act afraid when she sees a version of King Kong, but she laughs to see how small he really is. With a lamp, the directors project his shadow onto the wall & it looms much larger.

GOAL 1: A C GOAL 2: A1 C1e C4a GOAL 3: G4 G5 PS: X

533- 4 NUMBERMAN #5 (PT. 2): IRISH SKI TEAM 50611 STU 5:14  
Dave's guest is Sean-Claude Kelly, the Irish ski team. She complains that her last race should have been a tie because her time was only 69 hundredths of a second less than the winner's.

GOAL 1: A C GOAL 2: A1 B1 B4 C2c D1 GOAL 3: A4 B5 C2 PS:

533- 5 SNEAKY PEEKS #1: POLLYANNA JONES 50110 STU 6:34  
Dr. Pollyanna Jones helps Mallomar-Tut figure the height of his pyramid by measuring the lengths of the shadows cast by the pyramid and by a stick, and using similar triangles.

GOAL 1: A GOAL 2: A1 A3 B3 B4 C1b C2c D4 GOAL 3: B5 C2 F2 G6 PS: X

533- 6 MATHMAN: PENTAGONS 20150 ANI 1:33  
Mister Glitch plays a video game in which he must eat all polygons which are pentagons.

GOAL 1: C GOAL 2: GOAL 3: G6 PS:

# SQUARE ONE TV RUNDOWNS

- 533- 7 MATHNET-CASE OF THE SMART DUMMY-3 50233 NET 9:22  
 Pat and George visit Charlie and Edgar's agent where they get a copy of the itinerary of their last trip. They notice that the bands holding the stacks of money show the names of the same cities!
- GOAL 1: C GOAL 2: A1 B1 B3 GOAL 3: A5 PS: X
- 533- 8 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 534- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 534- 2 ZOOK & ALISON #3: SPA BRAVO 50090 ANI 6:22  
 Zook & Alison must find Uncle Wilt at a city that is equidistant from 3 other cities in Italy. They construct the intersection of the perpendicular bisectors between two pairs of the cities.
- GOAL 1: A C GOAL 2: A1 B1 B3 B4 C1a C2a C2c D1 GOAL 3: C2 G6 PS: X
- 534- 3 MATHCOURT: 8 FOOT CLOCK 50470 STU 4:25  
 Prosecutor argues that an 8' tall clock will fit in a room that is 8'1" high. Defendant demonstrates that the diagonal measurement of rectangular clock is the crucial measurement to check.
- GOAL 1: C GOAL 2: A1 B4 C1b C1e GOAL 3: G6 PS: X
- 534- 4 FAX HEADFULL INSERT #2: GEO. WELLROUND 2 50371 BUM 0:12  
 Fax Headfull tells the viewer that, "I used to be terribly square ... then I learned geometry and now I'm cool."
- GOAL 1: C GOAL 2: GOAL 3: PS:

# SQUARE ONE TV RUNDOWNS

- 534- 5 SHAPE UP 15310 SON 2:10  
Punning on gemetric terms, this music video illustrates geometric shapes in this song about betrayed love.
- GOAL 1: C GOAL 2: GOAL 3: G6 PS:
- 534- 6 FAX HEADFULL INSERT #3: WORKING TOGETHER 50360 BUM 0:12  
Fax Headfull tells the viewer, "When you're solving a problem, try working together ... "
- GOAL 1: GOAL 2: GOAL 3: PS:
- 534- 7 MATHNET-CASE OF THE SMART DUMMY-4 50234 NET 14:11  
Charlie and Edgar are arrested because robberies occurred in each of the cities on their trip! Grecco makes a Hamiltonian of their route. The D.A. announces that the money is counterfeit.
- GOAL 1: A C GOAL 2: A1 B1 B3 C1b C3a GOAL 3: G7 PS: X
- 534- 8 SHORT CLOSE 50781 MIS 0:42
- GOAL 1: GOAL 2: GOAL 3: PS:
- 535- 1 SEASON FIVE OPENING 50770 MIS 0:38
- GOAL 1: GOAL 2: GOAL 3: PS:
- 535- 2 PAULINE #5 50700 ANI 2:59  
Video character Pauline gets 2 chances to find a path to the top of a pyramid of numbered blocks. Each number she lands on (positive or negative) adds to her score, which must stay between 25 and -25.
- GOAL 1: C GOAL 2: A1 A2 B4 C2c D2 D3 GOAL 3: A6 B1 D1 PS: X

SQUARE ONE TV RUNDOWNS

535- 3 NOBODY'S INN #3: SAILS TAX 50190 STU 5:33  
 Nobody argues with a customer over the fairest way to calculate their bill: take off discount, then add surcharge, or the other way around. Jane shows that both ways yield the same result.

GOAL 1: A C GOAL 2: A1 B4 D3 D4 GOAL 3: A5 B1 PS: X

535- 4 FAX HEADFULL #7: CARS 50330 STU 2:31  
 Fax Headfull tells us that there are about 150 million cars in the U.S., or about 1 2/3 cars per person. He compares this to 1 car in China to 5000 people.

GOAL 1: C GOAL 2: GOAL 3: A2 A3 B5 PS:  
 F5

535- 5 MATHNET-CASE OF THE SMART DUMMY-5 50235 NET 14:48  
 Mathnetters compare the Hamiltonians of routes taken by the case and by Charlie & Edgar; they are very close. A check of passenger lists finds Snerd & Nosebleed, competitors of Charlie & Edgar.

GOAL 1: A GOAL 2: A1 B3 C1b C3a GOAL 3: A5 PS: X  
 C4b

535- 6 SHORT CREDIT CLOSE 50782 MIS 2:09

GOAL 1: GOAL 2: GOAL 3: PS: