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ABSTRACT

The Measurement and Evaluation Center conducted two validity studies designed to determine the test scores to be used by the Division in making decisions about credit by examination at the University of Texas Austin (UT Austin) in Biology 302, Cellular and Molecular Biology, and Biology 303, Structure and Function of Organisms. Seventy-nine summer-term students in Biology 302 took the UT Austin Test for Credit in Biology as part of their final examination. In Biology 303, Structure and Function of Organisms, 68 students took the UT Austin Test for Credit. Analysis of these results and course grades for students resulted in a recommendation that 31 be the decision score for students in the C range in Biology 302 and that 39 be the decision score for students in the C range in Biology 303. Scores for A and B grades are also recommended for each test. Seven tables present scores and findings. (SLD)

# VALIDITY STUDIES OF UT AUSTIN TESTS FOR USE IN CREDIT BY EXAMINATION IN *CELLULAR AND MOLECULAR BIOLOGY* (BIO 302) AND *STRUCTURE AND FUNCTION OF ORGANISMS* (BIO 303) SUMMER 1991

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and H. Paul Kelley

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MEASUREMENT AND EVALUATION CENTER
The University of Texas at Austin

# VALIDITY STUDIES OF UT AUSTIN TESTS FOR USE IN CREDIT BY EXAMINATION IN *CELLULAR AND MOLECULAR BIOLOGY* (BIO 302) AND *STRUCTURE AND FUNCTION OF ORGANISMS* (BIO 303) SUMMER 1991

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At the request of the Division of Biological Sciences at The University of Texas at Austin, the Measurement and Evaluation Center (MEC) conducted two validity studies designed to determine the test scores to be used by the Division in making decisions about credit by examination in Biology 302, *Cellular and Molecular Biology*, and in Biology 303, *Structure and Function of Organisms*.

During the first summer session of 1991, locally-prepared tests were administered to students in Biology 302 and in Biology 303 as part of their final examinations. Test scores were then analyzed in relation to student performance, as measured by final grades, in each of the courses.

## BIOLOGY 302

### Method

#### Subjects

Seventy-nine (79) students who were enrolled in Biology 302 during the first summer term of 1991 served as subjects. Biology 302 is an introduction to structure and function at cellular and subcellular levels; an integrated approach to molecular genetics, metabolism, development, evolution, and other life processes. One year of high school chemistry or one semester of college chemistry is recommended as preparation for this course.

#### Materials

The UT Austin Test for Credit in Biology 302 was prepared by faculty members of the Division of Biological Sciences. It is a one-hour test designed to cover the content of the course and consists of 50 multiple-choice items.

#### Procedure

In the first summer term of 1991, the UT Austin Test for Credit in Biology 302 was included as a part of the final examination in Biology 302. The MEC electronically scanned the test answer sheets, calculated Number Correct scores, and delivered those scores to the faculty member responsible for evaluating students' performances. Then the relationship between final course grades and test scores was analyzed. The correlation coefficient between test scores and course grades was

computed as well as the means and standard deviations of those measures of achievement. Frequency distributions of the Number Correct Scores (0-50 scale) were crosstabulated with the Final Course Grades (0-4 scale), and regression equations were obtained to estimate expected scores on the test from the course grades and to estimate the expected grades in the course from the test scores. Additionally, analyses were performed to estimate the accuracy of placement that would be expected to result from use of each test score value as a possible decision score. A table of possible decision scores was prepared for departmental consideration.

## Results

Tables 1.1 to1.4 were prepared by the MEC to present the results of the validity study to the Division of Biological Sciences in August 1991. The analyses were based upon test scores and course grades for 79 students.

Table 1.1 shows the frequency distribution of the test scores (column to left) crosstabulated with the five grade groups of *F* through *A* (columns 3-7) and for the total group of 79 students (column to right). Toward the bottom of the table are (a) the number and percentage of students in each grade group and in the total group and (b) the mean test score and standard deviation for each grade group and for the total group. At the bottom right are the mean final course grade (2.62) and the standard deviation (0.99) of those grades, the mean test score (34.84) and the standard deviation (6.87) of those scores, and the coefficient of correlation (.86) between the test scores and the course grades. (The value of this coefficient of correlation was inflated because the test scores constituted a part of the final examination scores, which in turn constituted a part of the final course grades.)

Also at the right of the table are the two regression equations used to estimate the Expected Scores (bottom row) and the Expected Grades (second column). For example, the minimally satisfactory grade of *C* (2.02) was expected for the group of students with a test score of 30. For the group of students who made grades of *C* , the Expected Score on the test was 31.14.

Table 1.2 presents the same descriptive statistics for the total group that was represented in Table 1.1, but the five grade groups are collapsed into two academic performance groups: Unsatisfactory (grades of *F* and *D*, or 0 and 1) and Satisfactory (grades of *C*, *B*, and *A*, or 2, 3, and 4). The number and percentage of students in each academic performance group, the mean test score, and the standard deviation for each group appear in the bottom two rows of the table.

Table 1.3 presents the expected accuracies of placement for 11 possible decision scores. At the left are the placement categories (possible decision scores). The second and third sets of

Table 1.1

Scores on The UT Austin Test in Biology 302 in Relation To Student Performance in Biology 302: Frequency Distributions, Descriptive Statistics, Regression Equations, Expected Grades, and Expected Scores
Summer 1991
(N = 79)

| | | Final Grades in Biology 302 | | | | | |
|---|---|---|---|---|---|---|---|
| Test Scores | Expected Grades | 0 F | 1 D | 2 C | 3 B | 4 A | Total N |
| 47 | 4.00 | | | | | 2 | 2 |
| 46 | 4.00 | | | | | 3 | 3 |
| 45 | 3.88 | | | | | | |
| 44 | 3.75 | | | | | 1 | 1 |
| 43 | 3.63 | | | | | 2 | 2 |
| 42 | 3.51 | | | | 1 | 3 | 4 |
| 41 | 3.38 | | | | 3 | 1 | 4 |
| 40 | 3.26 | | | | 5 | 1 | 6 |
| 39 | 3.13 | | | | 7 | | 7 |
| 38 | 3.01 | | | 1 | 4 | 1 | 6 |
| 37 | 2.89 | | | 1 | 1 | 1 | 3 |
| 36 | 2.76 | | | 2 | 2 | | 4 |
| 35 | 2.64 | | | | | | |
| 34 | 2.52 | | | 1 | 3 | | 4 |
| 33 | 2.39 | | | 1 | 3 | | 4 |
| 32 | 2.27 | | | 3 | 2 | | 5 |
| 31 | 2.14 | | | 3 | | | 3 |
| 30 | 2.02 | | 2 | 1 | | | 3 |
| 29 | 1.90 | | 1 | 1 | 1 | | 3 |
| 28 | 1.77 | | 1 | 2 | | | 3 |
| 27 | 1.65 | | | 1 | | | 1 |
| 26 | 1.53 | | 1 | | | | 1 |
| 25 | 1.40 | | 2 | 1 | | | 3 |
| 24 | 1.28 | | | | | | |
| 23-17 | 1.15-0.41 | 1 | 4 | 2 | | | 7 |
| Total | | 1 | 11 | 20 | 32 | 15 | 79 |
| % | | 1% | 14% | 25% | 41% | 19% | 100% |
| Mean Score | | 17.00 | 25.82 | 30.70 | 37.28 | 42.93 | 34.84 |
| Standard Deviation | | 0.00 | 2.85 | 4.41 | 3.25 | 3.02 | 6.87 |
| Expected Score | | 19.24 | 25.19 | 31.14 | 37.10 | 43.05 | |

Expected Grade = (Test Score x 0.1238) - 1.6936

Expected Score = (Final Grade x 5.9532) + 19.2365

| Mean Grade | Standard Deviation |
|---|---|
| 2.62 | 0.99 |

Coefficient of Correlation
r = .86

Table 1.2

Scores on The UT Austin Test in Biology 302 in Relation to Student Performance in Biology 302: Combined Frequency Distributions and Descriptive Statistics
Summer 1991
(N = 79)

| | Final Grades in Biology 302 | | |
|---|---|---|---|
| Test Scores | Unsatisfactory 0,1 | Satisfactory 2-4 | Total N |
| 47 | | 2 | 2 |
| 46 | | 3 | 3 |
| 45 | | | |
| 44 | | 1 | 1 |
| 43 | | 2 | 2 |
| 42 | | 4 | 4 |
| 41 | | 4 | 4 |
| 40 | | 6 | 6 |
| 39 | | 7 | 7 |
| 38 | | 6 | 6 |
| 37 | | 3 | 3 |
| 36 | | 4 | 4 |
| 35 | | | |
| 34 | | 4 | 4 |
| 33 | | 4 | 4 |
| 32 | | 5 | 5 |
| 31 | | 3 | 3 |
| 30 | 2 | 1 | 3 |
| 29 | 1 | 2 | 3 |
| 28 | 1 | 2 | 3 |
| 27 | | 1 | 1 |
| 26 | 1 | | 1 |
| 25 | 2 | 1 | 3 |
| 24 | | | |
| 23 - 17 | 5 | 2 | 7 |
| Total | 12 | 67 | 79 |
| % | 15% | 85% | 100% |
| Mean Score | 25.08 | 36.58 | 34.84 |
| Standard Deviation | 3.66 | 5.70 | 6.87 |

| Mean Grade | Standard Deviation |
|---|---|
| 2.62 | 0.99 |

| Coefficient of Correlation |
|---|
| r = .86 |

Table 1.3

Scores on The UT Austin Test for Biology 302 in Relation to Student Performance in Biology 302: Possible Decision Scores and Corresponding Accuracies of Placement
Summer 1991
(N = 79)

| Place-ment Category | Cumulative Number of Students | | | | Percent of Students in Each Placement Category | | | Overall Accuracy of Placement | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unsatisfactory 0,1 (N = 12) | | Satisfactory 2-4 (N = 67) | | Unsatisfactory | | Satisfactory | Placement Accuracy | Number of Students | % of Students |
| 35-up | Too High | 0 | 42 | Correct | Too High | 0% | 63% Correct | Too High | 0 | 0% |
| | | | | | | | | Correct | 54 | 68% |
| Below 35 | Correct | 12 | 25 | Too Low | Correct | 100% | 37% Too Low | Too Low | 25 | 32% |
| 34 - up | Too High | 0 | 46 | Correct | Too High | 0% | 69% Correct | Too High | 0 | 0% |
| | | | | | | | | Correct | 58 | 73% |
| Below 34 | Correct | 12 | 21 | Too Low | Correct | 100% | 31% Too Low | Too Low | 21 | 27% |
| 33- up | Too High | 0 | 50 | Correct | Too High | 0% | 75% Correct | Too High | 0 | 0% |
| | | | | | | | | Correct | 62 | 78% |
| Below 33 | Correct | 12 | 17 | Too Low | Correct | 100% | 25% Too Low | Too Low | 17 | 22% |
| 32 - up | Too High | 0 | 55 | Correct | Too High | 0% | 82% Correct | Too High | 0 | 0% |
| | | | | | | | | Correct | 67 | 85% |
| Below 32 | Correct | 12 | 12 | Too Low | Correct | 100% | 18% Too Low | Too Low | 12 | 15% |
| 31 - up | Too High | 0 | 58 | Correct | Too High | 0% | 87% Correct | Too High | 0 | 0% |
| | | | | | | | | Correct | 70 | 89% |
| Below 31 | Correct | 12 | 9 | Too Low | Correct | 100% | 13% Too Low | Too Low | 9 | 11% |
| 30 - up | Too High | 2 | 59 | Correct | Too High | 17% | 88% Correct | Too High | 2 | 3% |
| | | | | | | | | Correct | 69 | 87% |
| Below 30 | Correct | 10 | 8 | Too Low | Correct | 83% | 12% Too Low | Too Low | 8 | 10% |
| 29 - up | Too High | 3 | 61 | Correct | Too High | 25% | 91% Correct | Too High | 3 | 4% |
| | | | | | | | | Correct | 70 | 89% |
| Below 29 | Correct | 9 | 6 | Too Low | Correct | 75% | 9% Too Low | Too Low | 6 | 8% |
| 28 - up | Too High | 4 | 63 | Correct | Too High | 33% | 94% Correct | Too High | 4 | 5% |
| | | | | | | | | Correct | 71 | 90% |
| Below 28 | Correct | 8 | 4 | Too Low | Correct | 67% | 6% Too Low | Too Low | 4 | 5% |
| 27 - up | Too High | 4 | 64 | Correct | Too High | 33% | 96% Correct | Too High | 4 | 5% |
| | | | | | | | | Correct | 72 | 91% |
| Below 27 | Correct | 8 | 3 | Too Low | Correct | 67% | 4% Too Low | Too Low | 3 | 4% |
| 26 - up | Too High | 5 | 64 | Correct | Too High | 42% | 96% Correct | Too High | 5 | 6% |
| | | | | | | | | Correct | 71 | 90% |
| Below 26 | Correct | 7 | 3 | Too Low | Correct | 58% | 4% Too Low | Too Low | 3 | 4% |
| 25 - up | Too High | 7 | 65 | Correct | Too High | 58% | 97% Correct | Too High | 7 | 9% |
| | | | | | | | | Correct | 70 | 89% |
| Below 25 | Correct | 5 | 2 | Too Low | Correct | 42% | 3% Too Low | Too Low | 2 | 3% |

Table 1.4

Scores on The UT Austin Test in Biology 302 in Relation to Student Performance in Biology 302: Scores Suggested by Six Guidelines for Use in Selecting Decision Scores
Summer 1991
(N = 79)

| Guideline | UT Austin Biology Test Score |
|---|---|
| 1. Expected Score for students whose performance in course was just minimally satisfactory (i.e., students with final grades of *C*; see Expected Score row at bottom of Table 1.1). | 31 |
| 2. Score for which Expected Grade was just minimally satisfactory (i.e., *C*; see Expected Grade column in Table 1.1). | 30 |
| 3. Score for which percents of errors of students in each academic performance category (Unsatisfactory, Satisfactory) were most nearly equal. (See % Too High and % Too Low values in middle columns of Table 1.3.) | 30 |
| 4. Score for which overall percents of errors were most nearly equal. (See % Too High and % Too Low values in last column of Table 1.3.) | 28 |
| 5. Score that would have cut off (or held back) approximately the same number of students as were in the Unsatisfactory performance group. (See Table 1.2 for number of students in the Unsatisfactory group and the test score that most nearly identifies that number of low-scoring students.) | 28 |
| 6. Score that would have maximized overall accuracy of placement. (See number Correct in next-to-last column of Table 1.3.) | 27 |

columns give the numbers and percentages of students who, in each of the two academic performance categories, would have been placed too high and correctly (Unsatisfactory group) and correctly and too low (Satisfactory group) by use of each of the 11 possible decision scores. For example, if 30 had been the placement decision score, two of the students (17%) in the Unsatisfactory Final Grade category would have been placed too high, while eight of the students (12%) in the Satisfactory Final Grade category would be placed too low. The column entries also report the numbers and percentages of accurately placed students at each of the score placement categories. The last set of columns gives the overall accuracy of placement, by number and percentage, for both academic performance categories combined.

Table 4.1 lists six guidelines suggested by various authorities for selecting decision scores for use in a program of course placement and credit by examination. Each guideline refers the reader to one of the preceding tables. In this validity study, the test scores recommended by the six guidelines range from 27 to 31.

## Discussion and Decision Making

During the August 1991 meeting with the chairperson of the Division of Biological Sciences, MEC staff members recommended 31 as the decision score for students in the *C* range. A score of 31 corresponds to the Expected Score estimated by the regression procedure for the students who earned a grade of *C* in Biology 302 (see Guideline 1 of Table 1.4). The Expected Scores of students who received Biology 302 final grades of *B* and *A*, respectively, are 37 and 43 (see Expected Score row at the bottom of Table 1.1). The following score ranges for credit by examination in Biology 302 were recommended by MEC staff members and approved by the Division of Biological Sciences:

| Test Score Range | Credit and Letter Grade |
|---|---|
| 43-50 | Credit with Grade of *A* |
| 37-42 | Credit with Grade of *B* |
| 31-36 | Credit with Grade of *C* |

## BIOLOGY 303

The Measurement and Evaluation Center simultaneously conducted the Biology 302 and Biology 303 validity studies and utilized identical procedures when analyzing the data sets for the two courses. The following description of method and results of the Biology 303 validity study does not repeat some of the explanations contained in the preceding presentation of Biology 302 results.

### Method

#### Subjects

Sixty-eight (68) students who were enrolled in Biology 303 during the first summer term of 1991 served as subjects. Biology 303 is an introduction to the anatomy, reproduction, physiology, development, behavior, and evolution of microbes, plants, and animals. Biology 302 with a grade of at least a *C* is a prerequisite for Biology 303.

#### Materials

The UT Austin Test for Credit in Biology 303 was prepared by faculty members of the Division of Biological Sciences. It is a one-hour test designed to cover the content of the course and consists of 50 multiple-choice items.

### Results

Tables 2.1 to 2.4 present the results of the validity study; the analyses were based on test scores and final course grades for the 68 students enrolled in Biology 303.

Table 2.1 shows the mean course grade (2.04) and the standard deviation (1.08) of those grades, the mean test score (40.09) and the standard deviation (5.40) of those scores, and the coefficient of correlation (.85) between the test scores and the final course grades.

The six guidelines of Table 2.4 recommend decision scores of 39 and 40.

### Discussion and Decision Making

During the August 1991 meeting with the chairperson of the Division of Biological Sciences, MEC staff members recommended 39 as the decision score for students in the *C* range. A score of 39 represents the Expected Score of students who earned grades of approximately *C*– in Biology

303, and 43 and 47 represent the Expected Scores of students who received grades of approximately *B*– and *A*–, respectively. The following score ranges for credit by examination in Biology 303 were recommended by MEC staff members and approved by the Division of Biological Sciences:

| Test Score Range | Credit and Letter Grade |
|---|---|
| 47-50 | Credit with Grade of *A* |
| 43-46 | Credit with Grade of *B* |
| 39-42 | Credit with Grade of *C* |

Table 2.1

Scores on The UT Austin Test in Biology 303 in Relation To Student Performance in Biology 303: Frequency Distributions, Descriptive Statistics, Regression Equations, Expected Grades, and Expected Scores
Summer 1991
(N = 68)

| | | Final Grades in Biology 303 | | | | | |
|---|---|---|---|---|---|---|---|
| Test Scores | Expected Grades | 0 F | 1 D | 2 C | 3 B | 4 A | Total N |
| 49 | 3.57 | | | | | 1 | 1 |
| 48 | 3.40 | | | | 1 | 2 | 3 |
| 47 | 3.23 | | | | 1 | 1 | 2 |
| 46 | 3.05 | | | | 4 | 1 | 5 |
| 45 | 2.88 | | | | 3 | | 3 |
| 44 | 2.71 | | | 2 | 2 | | 4 |
| 43 | 2.54 | | | 2 | 3 | | 5 |
| 42 | 2.37 | | 1 | 5 | 3 | | 9 |
| 41 | 2.20 | | 1 | 3 | 1 | | 5 |
| 40 | 2.03 | | | 4 | 1 | | 5 |
| 39 | 1.86 | | 1 | 6 | | | 7 |
| 38 | 1.69 | | 2 | | | | 2 |
| 37 | 1.52 | | 1 | | | | 1 |
| 36 | 1.35 | | 2 | | | | 2 |
| 35 | 1.18 | | | | | | |
| 34 | 1.01 | 2 | 2 | 1 | | | 5 |
| 33 | 0.84 | | 1 | 1 | | | 2 |
| 32 | 0.66 | 2 | 1 | 1 | | | 4 |
| 31 | 0.49 | | | | | | |
| 30 | 0.32 | | | | | | |
| 29 | 0.15 | | | | | | |
| 28 - 25 | 0.00-0.00 | 3 | | | | | 3 |
| Total | | 7 | 12 | 25 | 19 | 5 | 68 |
| % | | 10% | 18% | 37% | 28% | 7% | 100% |
| Mean Score | | 30.00 | 36.67 | 40.00 | 44.11 | 47.60 | 40.09 |
| Standard Deviation | | 3.59 | 2.98 | 3.02 | 2.10 | 1.02 | 5.40 |
| Expected Score | | 31.44 | 35.67 | 39.90 | 44.13 | 48.36 | |

Expected Grade = (Test Score x 0.1707) - 4.7976

Expected Score = (Final Grade x 4.2316) + 31.4384

| Mean Grade | Standard Deviation |
|---|---|
| 2.04 | 1.08 |

Coefficient of Correlation
r = .85

Table 2.2

Scores on The UT Austin Test in Biology 303 in Relation to Student Performance in Biology 303: Combined Frequency Distributions and Descriptive Statistics
Summer 1991
(N = 68)

| | Final Grades in Biology 303 | | |
|---|---|---|---|
| Test Scores | Unsatisfactory 0,1 | Satisfactory 2-4 | Total N |
| 49 | | 1 | 1 |
| 48 | | 3 | 3 |
| 47 | | 2 | 2 |
| 46 | | 5 | 5 |
| 45 | | 3 | 3 |
| 44 | | 4 | 4 |
| 43 | | 5 | 5 |
| 42 | 1 | 8 | 9 |
| 41 | 1 | 4 | 5 |
| 40 | | 5 | 5 |
| 39 | 1 | 6 | 7 |
| 38 | 2 | | 2 |
| 37 | 1 | | 1 |
| 36 | 2 | | 2 |
| 35 | | | |
| 34 | 4 | 1 | 5 |
| 33 | 1 | 1 | 2 |
| 32 | 3 | 1 | 4 |
| 31 | | | |
| 30 | | | |
| 29 | | | |
| 28 - 25 | 3 | | 3 |
| Total | 19 | 49 | 68 |
| % | 28% | 72% | 100% |
| Mean Score | 34.21 | 42.37 | 40.09 |
| Standard Deviation | 4.55 | 3.65 | 5.40 |

| Mean Grade | Standard Deviation |
|---|---|
| 2.04 | 1.08 |

| Coefficient of Correlation |
|---|
| r = .85 |

Table 2.3

Scores on The UT Austin Test for Biology 303 in Relation to Student Performance in Biology 303: Possible Decision Scores and Corresponding Accuracies of Placement
Summer 1991
(N = 68)

| Place-ment Category | Cumulative Number of Students | | | | Percent of Students in Each Placement Category | | | Overall Accuracy of Placement | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unsatisfactory 0,1 (N = 19) | | Satisfactory 2-4 (N = 49) | | Unsatisfactory | | Satisfactory | Placement Accuracy | Number of Students | % of Students |
| 43 - up | Too High | 0 | 23 | Correct | Too High | 0% | 47% Correct | Too High | 0 | 0% |
| | | | | | | | | Correct | 42 | 62% |
| Below 43 | Correct | 19 | 26 | Too Low | Correct | 100% | 53% Too Low | Too Low | 26 | 38% |
| 42 - up | Too High | 1 | 31 | Correct | Too High | 5% | 63% Correct | Too High | 1 | 1% |
| | | | | | | | | Correct | 49 | 72% |
| Below 42 | Correct | 18 | 18 | Too Low | Correct | 95% | 37% Too Low | Too Low | 18 | 26% |
| 41 - up | Too High | 2 | 35 | Correct | Too High | 11% | 71% Correct | Too High | 2 | 3% |
| | | | | | | | | Correct | 52 | 76% |
| Below 41 | Correct | 17 | 14 | Too Low | Correct | 89% | 29% Too Low | Too Low | 14 | 21% |
| 40 - up | Too High | 2 | 40 | Correct | Too High | 11% | 82% Correct | Too High | 2 | 3% |
| | | | | | | | | Correct | 57 | 84% |
| Below 40 | Correct | 17 | 9 | Too Low | Correct | 89% | 18% Too Low | Too Low | 9 | 13% |
| 39- up | Too High | 3 | 46 | Correct | Too High | 16% | 94% Correct | Too High | 3 | 4% |
| | | | | | | | | Correct | 62 | 91% |
| Below 39 | Correct | 16 | 3 | Too Low | Correct | 84% | 6% Too Low | Too Low | 3 | 4% |
| 38 - up | Too High | 5 | 46 | Correct | Too High | 26% | 94% Correct | Too High | 5 | 7% |
| | | | | | | | | Correct | 60 | 88% |
| Below 38 | Correct | 14 | 3 | Too Low | Correct | 74% | 6% Too Low | Too Low | 3 | 4% |
| 37 - up | Too High | 6 | 46 | Correct | Too High | 32% | 94% Correct | Too High | 6 | 9% |
| | | | | | | | | Correct | 59 | 87% |
| Below 37 | Correct | 13 | 3 | Too Low | Correct | 68% | 6% Too Low | Too Low | 3 | 4% |
| 36 - up | Too High | 8 | 46 | Correct | Too High | 42% | 94% Correct | Too High | 8 | 12% |
| | | | | | | | | Correct | 57 | 84% |
| Below 36 | Correct | 11 | 3 | Too Low | Correct | 58% | 6% Too Low | Too Low | 3 | 4% |
| 35 - up | Too High | 8 | 46 | Correct | Too High | 42% | 94% Correct | Too High | 8 | 12% |
| | | | | | | | | Correct | 57 | 84% |
| Below 35 | Correct | 11 | 3 | Too Low | Correct | 58% | 6% Too Low | Too Low | 3 | 4% |
| 34 - up | Too High | 12 | 47 | Correct | Too High | 63% | 96% Correct | Too High | 12 | 18% |
| | | | | | | | | Correct | 54 | 79% |
| Below 34 | Correct | 7 | 2 | Too Low | Correct | 37% | 4% Too Low | Too Low | 2 | 3% |
| 33 - up | Too High | 13 | 48 | Correct | Too High | 68% | 98% Correct | Too High | 13 | 19% |
| | | | | | | | | Correct | 54 | 79% |
| Below 33 | Correct | 6 | 1 | Too Low | Correct | 32% | 2% Too Low | Too Low | 1 | 1% |