DOCUMENT RESUME

ED 022 946 08 VT 006 902

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OCCUPATIONAL MATHEMATICS; PERCENTAGE. REPORT NO. 16-P. FINAL REPORT.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Bureau No-BR-7-0031
Pub Date Jun 68
Grant-OEG-4-7-070031-1626
Note-117p.
EDRS Price MF-$0.50 HC-$4.76
Descriptors-*ARITHMETIC, *FRACTIONS, *PERCENTAGE, *PROGRAMED TEXTS, *VOCATIONAL EDUCATION

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) convert to a percentage from a fraction of the form a/b, where 0 is less than (a,b) and these are less than 1,000, (2) convert from a percent to a fraction, (3) convert from a decimal to a percentage, (4) convert from a percent to a decimal, and (5) solve percentage problems of the form A=% x Base for A, %, or Base given the other two factors. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 822-VT 006 909, and VT 006 975. (EM)

FINAL REPORT
Project No. 0E7-0031
Contract No. 0EG-4-7-070031-1626
Report No. 16-P

Occupational Mathematics

PERCENTAGE

June 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

Occupational Mathematics

PERCENTAGE

Project No. 0E7-0031
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Report No. 16-P

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June 1968

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Washington State University, Department of Education, Pullman, Washington
State Coordinating Council for Occupational Education, Olympia, Washington

OBJECTIVES

1. The student should be able to convert from a fraction of the form a/b where $0 \leq (a,b) < 1000$ to a percentage.

2. The student should be able to convert from a per cent to a fraction.

3. The student should be able to convert from a decimal to a percentage.

4. The student should be able to convert from a per cent to a decimal.

5. The student should be able to solve pe centage problems of the form A = % x Base for A, %, or Base given the other two.

Greetings! You are about to begin improving your knowledge of basic mathematics. There are many important uses for the mathematics you are learning.

This booklet is not like your ordinary books. It is designed to help you learn as an individual. On the following pages you will find some information about mathematics. After the information is presented, you will be asked a question. Your answers to these questions will determine how you proceed through this booklet. When you have selected your answer to the question, turn to the page you are told to.

Do not write in this booklet. You may wish to have a pencil and some paper handy so you can write when you want to.

Remember this is not an ordinary book.

1. Study the material on the page.
2. Read the question on the page (you may want to restudy the material on the page).
3. Select the answer you believe is correct.
4. Turn to the page indicated by your answer.

Are you ready to begin?

(a) Yes — Turn to page 1

(b) No — Turn to page C

(c) HELP — Go see your teacher

Your answer was (b) No.

Well, this booklet is a little different.

Go back and read page B again. After you have read it, you will probably be ready to begin.

We shall now look at a subset of the decimals' numbers. The members of this set include all decimals whose denominators are exactly 100. The members of this set are called "per cents." The word "per cent" comes from the Latin words per centum, which means "by the hundred."

We write per cents using the symbol %. Thus, 10 per cent is written 10%, and is equal to 10/100. When you see a per cent symbol, %, think of 100.

Turn to page 2

Okay, let's see if you have the idea.

5/100 = ___%.

(a)	.05	Turn to page 5
(b)	1/20	Turn to page 10
(c)	5	Turn to page 7

Incorrect.

200/100 = 200%. Just replace the denominator of 100 by the per cent symbol.

What per cent is 2500/100?

(a) 2500% Turn to page 8

(b) 250% Turn to page 12

(c) 25% Turn to page 15

Wait a minute!

Where is the per cent symbol? The integer 175 is <u>not</u> equal to 175/100.

Go back to page 8 and make another selection.

Your answer is incorrect.

Go to page 10 for another explanation.

Turn to page 10.

Your answer is incorrect. The correct answer was 5/4.

Let's look at how the problem should be worked.

Step 1: 125% = 125/100 as the per cent symbol stands for a denominator of 100.

Step 2: We reduce 125/100 to lowest terms which is 5/4.

Try this one.

Write 150% as a fraction.

(a)	3/2	Turn to page 30
(b)	150/1	Turn to page 22
(c)	150/100	Turn to page 33

That's correct!

Here is another one.

200/100 = ___%.

(a) 200 Turn to page 20

(b) 20 Turn to page 23

(c) 2 Turn to page 3

Fine! That's the right answer.

What per cent is 175/100?

(a) 1.75% Turn to page 15

(b) 175 Turn to page 4

(c) 175% Turn to page 20

Incorrect.

You <u>don't</u> change a fraction to a decimal before adding the per cent sign. You just drop or omit the denominator of 100 and replace it by a % symbol.

Try this one.

10/100 = ___%.

(a) 1 Turn to page 19

(b) 10 Turn to page 14

You need to take a closer look at the meaning of per cents. Look at it this way.

A per cent is another name for a <u>fraction</u> with a denominator of 100. Let's look at some examples.

Examples: (a) 3% = 3/100

(b) 15% = 15/100

(c) 150% = 150/100

We might say that the per cent symbol is a <u>denominator</u> of 100.

Turn to page 11

Find the answer to this problem.

7/100 = ___%.

(a) 70 Turn to page 17

(b) 7 Turn to page 14

(c) .07 Turn to page 9

Ooops! You were a little careless there.

Return to page 3 and make another selection.

Turn to page 3.

Excellent!

Let's continue.

125% is the fraction:

(a)	4/5	Turn to page 6
(b)	5/4	Turn to page 25
(c)	125/100	Turn to page 34

Good! That's correct.

What per cent is 25/100?

(a) 1/4% Turn to page 18

(b) .25% Turn to page 9

(c) 25% Turn to page 7

No. Incorrect.

Remember, if the denominator is 100, you do not change the numerator. Just drop the denominator and add the per cent symbol (%).

Let's try to get you back on the main track with this question.

137/100 = ___%.

(a) 1.37 Turn to page 9

(b) 137 Turn to page 8

Your answer is incorrect.

Go to page 28 for an explanation on this type of problem.

Turn to page 28.

Incorrect.

'ou didn't understand what you just read. Go back to page 10 and read the material carefully. Then continue from there.

Wait a minute.

Per cent means per 100. Therefore, the denominator must be 100, not 4.

Return to page 14 and try again.

Turn to page 14.

You seem to be having trouble with the concept of a per cent.

Go back to page 10 and read the material carefully. Then continue from there.

Turn to page 10.

Correct! You're doing a fine job.

Let's continue.

Write 13% as a fraction.

(a) 13/1 Turn to page 28

(b) 13/10 Turn to page 10

(c) 13/100 Turn to page 13

You're doing fine! Your answer was correct.

Now write 25% as a fraction.

(a)	25/100	Turn to page 31
(b)	2 1/2	Turn to page 32
(c)	1/4	Turn to page 13

Your answer is incorrect.

A per cent is a fraction with a denominator of 100. Did you put 100 in the denominator of your problem before you reduced?

Try to get back on the right track with this problem.

Write 200% as a fraction.

(a) 2 Turn to page 30

(b) 200/1 Turn to page 27

Your answer is incorrect.

Go to page 10 for a different explanation on per cent.

Turn to page 10.

4/100 is a correct answer. However, as a fraction, it will reduce.

Return to page 29 and choose a better answer.

Turn to page 29.

Correct! Let's continue.

Since per cents are just numbers divided by 100, we can write them in decimal form rather than as fractions. This can easily be done by just moving the decimal point two places to the left. Let's look at a couple of examples.

(a) 236% = 2.36

(b) 36% = .36

Notice that you just drop the per cent symbol and move the decimal point two places to the left.

Now, which would you rather do?

(a) I want to find out why you move the decimal point two places to the left
Turn to page 39

(b) I understand and want to continue with the Unit
Turn to page 26 and continue

Work this problem.

35% written as a decimal is:

(a)	.35	Turn to page 43
(b)	.0035	Turn to page 39
(c)	3.5	Turn to page 36

You seem to be having trouble with the concept of per cent.

Return to page 1 and start this Unit over. Take your time and be more careful this time.

Turn to page 1.

Let's take a closer look at the problem.

We are supposed to write a per cent as a common fraction. This should be as easy as per cent stands for a denominator of 100. Therefore, to change a per cent to a fraction, we follow these steps:

Step 1: Drop the per cent sign and put 100 in the denominator.

Step 2: Reduce the fraction to lowest terms.

Here are some examples to help you:

(a) 40% equals 40/100 which reduces to 2/5

(b) 4% equals 4/100 which reduces to 1/25

(c) 400% equals 400/100 which reduces to 4

Turn to page 29

Now work this problem.

4% written as a fraction is:

(a)	4/1	Turn to page 32
(b)	4/100	Turn to page 24
(c)	1/25	Turn to page 21

Okay, that's correct!

Work this one.

100% written as a fraction is:

(a)	100/100	Turn to page 35
(b)	1/10	Turn to page 22
(c)	1	Turn to page 25

Whoops! Forgot to reduce your answer.

Go back to page 21 and choose an answer that is in lowest terms.

Turn to page 21.

Incorrect.

A per cent is a fraction with a denominator of 100. Did you put 100 in the denominator of your problem before you reduced?

Try to get back on the right track with this problem.

Write 1% as a fraction.

(a) 1/10 Turn to page 27

(b) 1/100 Turn to page 21

Whoa! Forgot to reduce your answer.

Return to page 6 and pick the correct answer in lowest terms.

Turn to page 6.

Ooops! Forgot to reduce your answer.

Go back to page 13 and choose an answer that is in lowest terms.

Turn to page 13.

Whoa! You forgot to reduce your answer.

Return to page 30 and pick the correct answer reduced to lowest terms.

Turn to page 30.

Your answer is incorrect.

Turn to page 39 for a more complete explanation of this type of problem.

Turn to page 39.

Correct!

Let's continue.

2 1/5% written as a decimal is:

(a) 2.2 Turn to page 53

(b) .22 Turn to page 41

(c) .022 Turn to page 56

That's correct!

Let's continue.

2 1/2% written as a decimal is:

(a) .25 Turn to page 65

(b) .025 Turn to page 56

(c) 2.5 Turn to page 42

Let's look at changing a per cent into a decimal a little more closely. First of all, as you already know, a per cent can be written as a fraction with 100 in the denominator. Now the only thing we must do is to change the fraction to a decimal.

To change a fraction into a decimal, we divide the numerator by the denominator. But, in our case, that denominator is 100. What happens when you divide by 100? Let's look at a couple examples and see.

Example 1: $25 \div 100 = 100/\overline{25} = 100/\overline{25.00}$

$$\begin{array}{r} .25 \\ 25.00 \\ \underline{20\ 0} \\ 5\ 00 \\ \underline{5\ 00} \end{array}$$

Example 2: $135 \div 100 = 135/100 = 1.35/1.00$

$= 1.35/1 = 1.35$.

You notice that dividing by 100 just moves the decimal point two places to the left.

Therefore, to change a per cent into a decimal, just drop the per cent symbol and move the decimal point two places to the left.

Continued on next page

Here are a couple of examples for you to look at:

Example 1: 45% = .45

Example 2: 5% = .05

Example 3: 145% = 1.45

Are you ready to go on?

Then turn to page 40 and continue.

Okay, let's work this problem now.

What decimal is equal to 50%?

(a)	.05	Turn to page 49
(b)	.5	Turn to page 45
(c)	50.	Turn to page 55

Incorrect.

You should remember that 2% = 2/100.

Return to page 37 and try the problem again.

Your answer is incorrect.

Let's look at how it's worked. 2 1/2% is equal to 2.5%. Now we simply change 2.5% into a decimal by dividing by 100 and dropping the % symbol. You should recall that dividing by 100 just moves the decimal point two places to the left. So 2.5% becomes .025.

Try this problem.

What decimal is equal to 3 1/4%?

(a) 3.25 Turn to page 60

(b) .325 Turn to page 50

(c) .0325 Turn to page 37

Correct! You are doing fine.

Let's continue.

Write 3% as a decimal.

(a) .3 Turn to page 51

(b) .003 Turn to page 47

(c) .03 Turn to page 38

Your answer is incorrect. Let's look at the solution to the problem.

To write 12 3/4% as a decimal, we first change the fractional part into decimal form. Thus, 12 3/4% = 12.75%. Now we divide by 100; and 12.75% becomes .1275. Easy, right?

Try this one.

Write 21 1/2% as a decimal.

(a) 21.5 Turn to page 52

(b) .215 Turn to page 66

Correct!

Let's go on.

Write 130% as a decimal.

(a) 1.3 Turn to page 43

(b) 13. Turn to page 48

(c) .13 Turn to page 49

You seem to be having trouble seeing the relationship between per cents, decimals, and fractions.

Go to Unit 12 and review the concept of changing fractions to decimals. Then come back to page 1 of this Unit and start over.

Your answer is incorrect.

Let's look at how the problem should have been worked. To write 3% as a decimal, we write 3 hundredths (3/100) or simply move the decimal two places to the left. In either case, we get .03.

Try this one.

5% written as a decimal is:

(a) .05 Turn to page 58

(b) .5 Turn to page 64

Whoops!

You made a careless mistake. Go back to page 45 and work the problem again.

Turn to page 45.

Incorrect.

Look at it this way. Change the per cent to a common fraction and then change the fraction to a decimal.

Try this problem now.

What decimal is equal to 10%?

(a) .10 Turn to page 45

(b) .01 Turn to page 46

Whoops! You made a careless mistake.

Remember that 3% = 3/100. Return to page 42 and work the problem again.

Your answer is incorrect.

Let's look at how the problem should have been worked.
To write 3% as a decimal, we write 3 hundredths (3/100)
or simply move the decimal two places to the left.
In either case, we get .03.

Try this one.

5% written as a decimal is:

(a) .05 Turn to page 58

(b) .5 Turn to page 64

Wrong answer.

You forgot to divide by 100 to convert the per cent to decimal form. Look at this example:

$$21.5\% = 21.5/100 = .215.$$

Work this problem.

13 1/4% written as a decimal is:

(a) 13.25 Turn to page 60

(b) .1325 Turn to page 66

Wrong answer. You didn't divide by 100.

Be more careful and try this problem.

3 1/2% is equal to what decimal?

(a)	.035	Turn to page 37
(b)	.35	Turn to page 57
(c)	3.5	Turn to page 60

You seem to be having trouble changing per cents into decimal forms.

Go to page 39 and read the explanation carefully. Then continue from there.

Turn to page 39.

Wait a minute.

The integer 50 is <u>not</u> equal to 50%. I'm sure you know that.

You better go back to page 40 and pick a better answer.

Turn to page 40.

Right again!

Here's another one.

Write 12 3/4% as a decimal.

(a) 1.275 Turn to page 44

(b) 12.75 Turn to page 59

(c) .1275 Turn to page 69

Incorrect.

You should remember that 3% = 3/100.

Return to page 53 and try the problem again.

Correct!

Let's continue.

Write 225% as a decimal.

(a) 22.5 Turn to page 64

(b) 2.25 Turn to page 38

(c) 225. Turn to page 62

Your answer is incorrect. Let's look at the solution to the problem.

To write 12 3/4% as a decimal, we first change the fractional part into decimal form. Thus, 12 3/4% = 12.75%. Now, we divide by 100; and 12.75% becomes .1275. Easy, right?

Try this one.

Write 21 1/2% as a decimal.

(a) 21.5 Turn to page 52

(b) .215 Turn to page 66

Incorrect.

You forgot what per cent means. Surely you know that a "cent" is 1/100 of a dollar. Well, per cent means "by the cent" or by the hundredth. Therefore, when converting a per cent to a decimal, we must always divide by 100, or if you like, multiply by .01.

Example: 5% = 5/100 = 5 x .01 = .05.

Try this problem now.

What decimal is equal to 6 1/10%?

(a) 6.1 Turn to page 63

(b) .61 Turn to page 54

(c) .061 Turn to page 37

Ooops! Mislocated your decimal point.

Try another one to get back on the track.

Write 2 1/5% as a decimal.

(a) 2.2 Turn to page 52

(b) .022 Turn to page 66

(c) .025 Turn to page 68

Come now. You can do better than that.

Return to page 58 and work the problem again.

Turn to page 58.

You seem to be having trouble changing per cents into decimal forms.

Go to page 39 and read the explanation carefully. Then continue from there.

Turn to page 39.

Incorrect.

You are having trouble writing hundredths. In decimal notation hundredths are just two decimal places.

Let's get back on the right track now with this problem.

Write 1% as a decimal.

(a) .1 Turn to page 49

(b) .01 Turn to page 58

Your answer is incorrect. Let's look at how it's worked.

2 1/2% is equal to 2.5%. Now, we simply change 2.5% into a decimal by dividing by 100 and dropping the % symbol. You should recall that dividing by 100 just moves the decimal point two places to the left. So 2.5% becomes .025.

Try this problem.

What decimal is equal to 3 1/4%?

(a) 3.25 Turn to page 60

(b) .325 Turn to page 50

(c) .0325 Turn to page 37

Correct!

Keep going.

Write 4 1/8% as a decimal.

(a) .04125 Turn to page 69

(b) .4125 Turn to page 61

(c) 4.125 Turn to page 52

Ooops! Made a mistake.

You should remember that 3% = 3/100.

Return to page 68 and rework the problem.

No. Your response is incorrect.

You made an error in your arithmetic.

I'll give you another chance.

What is 3 1/4% equal to in decimal form?

(a) 3.25 Turn to page 52

(b) .325 Turn to page 67

(c) .0325 Turn to page 66

A small problem arises when the fractional part of a per cent is a decimal that does not come out evenly to tenths or hundredths. In cases like this, we will use the rounding off techniques that were discussed in previous units. So, by mutual agreement, we shall change all fractional per cents into decimals and round them off to HUNDREDTHS (two decimal places).

EXAMPLE: 3 2/9% = 3.222222222222...%, so we just round off to 3.22% and then change that into decimal form. Therefore, 3 2/9% = 3.22% = .0322.

Turn to page 70 and continue

Okay, now work this problem.

8 5/9% written as a decimal is:

(a)	.0856	Turn to page 93
(b)	.8556	Turn to page 77
(c)	8.5555	Turn to page 76
(d)	.0855	Turn to page 98

Your answer is incorrect. You must take more time and figure each problem out carefully.

Remember, per cent means "by the hundred" which is another way of saying divided by 100. Also, I am sure that you know that to divide by 100 is the same as multiplying by .01. Therefore, to change any per cent to decimal form, just multiply by .01.

Here are a couple of examples for you.

3% = 3 x .01 = .03

23.68% = 23.68 x .01 = .2368

5.33% = 5.33 x .01 = .0533

Here's another problem for you. 12 2/3% in decimal form is:

(a)	.1267	Turn to page 83
(b)	12.6667	Turn to page 39
(c)	.1266	Turn to page 81

That is the right answer!

Here's the next problem.

1225% written in decimal form is:

(a) .1225 Turn to page 88

(b) 1.225 Turn to page 87

(c) 12.25 Turn to page 85

Your answer is incorrect. Let's look at how it should be worked.

.73 = .73 x 100% = 73%. How can this be? Well, 100% is equivalent to 1 since % = 1/100 and 100 x 1/100 = 1. Therefore, to change to per cent, we multiply by 100%.

Got it? Good.

Here you go.

.25 = ___%.

(a)	1/4	Turn to page 82
(b)	2.5	Turn to page 91
(c)	25	Turn to page 89

Hmmmmmmm! 100 x .6 is not 6.

Return to page 89 and try again.

You seem to be having trouble working these problems. They're really not that hard.

Go to page 85 and read the rules for changing numbers into per cents. After you're sure you know and understand the rule, continue from there.

Turn to page 85.

Your answer is incorrect. Remember to change a per cent into a decimal, we divide by 100.

Therefore, 8 5/9% = 8.555555...% = 8.56% and 8.56% = 8.56/100 = 8.56 x .01 = .0856.

Try this problem.

4 1/3% in decimal form is:

(a) 4.3333 Turn to page 80

(b) .4333 Turn to page 71

(c) .0433 Turn to page 83

Your answer is incorrect.

Remember, to change a per cent into a decimal, we divide by 100. Therefore:

8 5/9% = 8.555555...% = 8.56% and 8.56% = 8.56/100 = 8.56 x .01 = .0856.

Try this problem.

4 1/3% in decimal form is:

(a)	4.3333	Turn to page 80
(b)	.4333	Turn to page 71
(c)	.0433	Turn to page 83

Your answer is incorrect.

Maybe this will help you. To change a per cent to decimal form, we divide by 100. However, to divide by 100 is the same as multiplying by .01. Therefore, to change to decimal form, we multiply the per cent by .01 and drop the per cent symbol.

EXAMPLE: 5% = 5 x .01 = .05.

Try this problem.

Write 125% as a decimal.

(a)	12.5	Turn to page 84
(b)	1.25	Turn to page 72
(c)	.125	Turn to page 88

It is true that 5 3/8% works out exactly to .05375. However, we agreed to change from a per cent to a decimal rounded off to two places. Then we would change this new per cent into decimal form.

Return to page 83 and pick an answer consistent with our agreement.

Whoops! You forgot to divide by 100.

Go back to page 77 and divide by 100 this time.

You seem to be having trouble rounding off and writing the per cent in correct decimal form.

Go to page 69 and read the explanation on that page carefully. Then continue working from there.

???????? How did you get a fraction? Forgot to multiply by 100, I bet.

Let's look at a couple examples:

(a) 5 = 5 x 100% = 500%

(b) .376 = .376 x 100% = 37.6%

(c) .02 = .02 x 100% = 2%

Study these examples until you feel that you understand the process.

Then work this problem.

.50 = ___%.

(a) .5	Turn to page 96
(b) 50	Turn to page 89
(c) 5	Turn to page 75

Correct!

Here is the next problem.

Write 4 1/3% as a decimal.

(a) .5375 Turn to page 79

(b) .0538 Turn to page 93

(c) .5375 Turn to page 71

You made a mistake in arithmetic. 125 x .01 does not equal 12.5.

Return to page 78 and try again.

Now we are going to change decimals into per cents. You can probably guess that we are just going to reverse the process we have been doing. In other words, to chance a decimal to a per cent, we multiply by 100 and annex the per cent symbol.

Another way to look at it is to move the decimal point two places to the RIGHT and annex the per cent symbol. If you want to see the <u>reason</u> behind this method, turn to page 95.

Otherwise, turn to page 86 and continue.

Okay, here is your next problem.

.73 = ___%.

(a) 7.3 Turn to page 73

(b) 73 Turn to page 100

(c) .073 Turn to page 95

You made a careless mistake.

Return to page 72 and try again.

Whoooops!

When you multiply by .01, you move the decimal point only two places in your answer. Be a little more careful, please.

Now, make a choice from the following selections:

(a) I was just careless. I want to continue the program. Turn to page 78

(b) I would like a little more review. Turn to page 71

Correct!

Here is another one for you.

Write .6 as a per cent.

(a) 3/5% Turn to page 82

(b) 6% Turn to page 74

(c) 60% Turn to page 100

Your answer is correct.

Please continue with this problem.

Write 7.4 as a per cent.

(a)	740%	Turn to page 107
(b)	74%	Turn to page 94
(c)	.074	Turn to page 99

Come on now. You can multiply better than that.

Return to page 95 and try again.

Oh, no! Just because it looks like the best answer doesn't mean that it is correct.

Now let me ask you, when you multiplied by 100, how many places did you move the decimal? You were supposed to have moved TWO decimal places to the RIGHT.

Try another one.

1.055 = ___%.

(a) 1055 Turn to page 104

(b) 105.5 Turn to page 108

(c) .0106 Turn to page 109

You are doing well!

Let's continue.

100% written in decimal form is:

(a)	100	Turn to page 78
(b)	10	Turn to page 97
(c)	1	Turn to page 85

Now, wait a minute.

7.4 x 100 doesn't equal 74.

Go back to page 90 and try again.

Your answer is incorrect. Let's look at how it should be worked.

.73 = .73 x 100% = 73%. How can this be? Well, 100% is equivalent to 1 since % = 1/100 and 100 x 1/100 = 1. Therefore, to change to per cent we multiply by <u>100%</u>. Got it? Good!

Here you go.

.25 = ___%.

(a) 1/4 Turn to page 82

(b) 2.5 Turn to page 91

(c) 25 Turn to page 89

You seem to be having trouble working these problems.

Go to page 95 to find out how to change any number into a per cent. Then continue from there.

Turn to page 95.

Your answer is incorrect. Maybe this will help you.

To change a per cent to decimal form, we divide by 100. However, to divide by 100 is the same as multiplying by .01. Therefore, to change to decimal form, we multiply the per cent by .01 and drop the per cent symbol.

Example: 5% = 5 x .01 = .05.

Try this problem.

Write 125% as a decimal.

(a)	12.5	Turn to page 84
(b)	1.25	Turn to page 72
(c)	.125	Turn to page 88

Incorrect. You forgot to round off your answer.

Go back to page 69 and read the information again.

Then continue from there.

Turn to page 69.

Oh, oh! You moved the decimal point the wrong way.

When you multiply by 100, you move the decimal point two places to the RIGHT.

Try again.

1.25 = ___%.

(a) 5/4% Turn to page 82

(b) 1.25% Turn to page 96

(c) Neither of the above answers Turn to page 90

Good! That answer is correct.

Try this one.

1.5 = ___%.

(a) 150 Turn to page 107

(b) 15 Turn to page 103

(c) 1.5 Turn to page 96

You seem to be having trouble writing per cents.

Return to page 85 and study the rules for changing numbers to per cents. Then continue from there.

Turn to page 85.

Incorrect. Here is how the problem is worked.

.375 = .37 5%. Just move the decimal point two places to the RIGHT and annex the per cent symbol. (If you want to know why this rule works, go to page 95 and read the explanation there.)

Try this problem.

.216 = ___%.

(a)	21.6	Turn to page 108
(b)	2.16	Turn to page 111
(c)	216	Turn to page 104

Your answer is incorrect.

To change to a per cent, we multiply by 100% since 100% is an equivalent form of 1.

Try another problem.

What per cent is equal to 1.75?

(a)	175%	Turn to page 90
(b)	17.5%	Turn to page 106
(c)	.0175%	Turn to page 99

Incorrect. Look at it this way.

If we multiply any number by 1 or an equivalent form of 1, we <u>don't</u> change the value of the number, do we?

Well, 100% is equal to 1. Therefore, if you multiply any number by 100%, you don't change the value <u>AND</u> the number is in per cent form.

Example: .3142 = .3142 x 100% = 31.42%.

Work this problem.

.035 written as a per cent is:

(a) 3.5% Turn to page 108

(b) 35% Turn to page 101

Good for you! That's correct; and it was a tough problem, too.

Well, you have finished this part of the unit successfully. Get Booklet #II of this unit and continue on page 113 with the changing of fractions to per cent form.

Bye! See you in Booklet #II.

Aw! You can do better than that.

You don't just annex the per cent symbol to make a per cent. I am sure you realize that 5 is <u>not</u> equal to 5%.

Return to page 103 and work the problem again.

Very good! You're doing fine.

Continue with this problem.

What is .375 written as a per cent?

(a)	375%	Turn to page 102
(b)	37 1/2%	Turn to page 105
(c)	3 3/4%	Turn to page 110

Your answer is correct!

Here is your next problem.

What per cent is equal to .0025?

(a)	25%	Turn to page 92
(b)	2 1/2%	Turn to page 112
(c)	1/4%	Turn to page 105

Move that decimal point to the RIGHT. You are multiplying by 100%, remember?

Go back to page 92 and be more careful this time.

Incorrect. Here is how the problem is worked.

.375 = .37$\frac{1}{2}$5%. Just move the decimal point two places to the RIGHT and annex the per cent symbol. (If you want to know why this rule works, go to page 95 and read the explanation there.)

Try this problem.

.216 = ___%.

(a) 21.6 Turn to page 108

(b) 2.16 Turn to page 111

(c) 216 Turn to page 104

You made a careless mistake in multiplying.

Return to page 102 and choose another answer.

No, you made a mistake in your work.

Go back to page 108 and work the problem again.