

Percent Conversions



**Academic Center for
Enrichment**

5 / 17/2005
Booklet 3, Version 2
Kathryn I. Schulte 2005 ©

Academic Center for Enrichment
Central Lakes College
501 W. College Drive
Brainerd, MN
56401

TO:

Table of Contents

| | |
|-----------------------------|----|
| Purpose of Booklet | 3 |
| Warm-up | 4 |
| What is a percent? | 5 |
| Convert Percent to Decimal | 6 |
| Convert Decimal to Percent | 8 |
| Convert Fraction to Decimal | 10 |
| Convert Fraction to Percent | 12 |
| Word Problems | 14 |
| Word Problems Practice | 16 |
| Solutions | 18 |
| Workbook Practice | 20 |
| Workbook Practice Solutions | 22 |
| More Resources | 23 |

More Resources

Academic Center for Enrichment

Central Lakes College
1-800-933-.0346 Ext. 8121

Percent Worksheets

<http://www.clcmn.edu/kschulte/prep.htm>

Central Lakes College is committed to providing equal education/employment opportunities to all persons and does not discriminate on the basis of race, religion, creed, color, national origin, gender, ancestry, sexual orientation, age, marital status, disability, reliance on public assistance or against any other recognized protected class. This information is available in alternative format upon a 48 hour advanced request by contacting Disability Services at 1-800-933-0346 Ext. 8128

Workbook Practice Solutions

1. b $52 \div .71 = 36.92$

2. d $.40 \times 740 = 296$

3. d $165 \div 300 = .55 = 55\%$

4. a left

5. c $3 \div 8 = .375 = 37.5\%$

6. b top \div bottom

7. b $230,000 \times .15 = \$34,500$

8. c .036

9. b $56 \times .75 = 42$

10. c 25.7%

11. c $30 \div 125 = .24 = 24\%$

Purpose of Booklet

Booklet

This booklet was written to help Central Lakes College students refresh their skills in percent, fraction and decimal conversions. It is not intended to replace any math course.

Booklet Guide

This booklet is divided into chapters. Each chapter consists of rules, examples and practice problems. You should attempt each problem and check their solutions. Incorrect answers should be attempted until they are correct.

A 'workbook practice' is given at the end of the booklet. Do not look back into the booklet to solve the problems! Check your answers. If you have an incorrect answer, return to that section and review. There are extra resources listed for more review.

Warm-Up

This warm-up will determine which sections you should practice. Solutions can be found on the page listed.

Write each percent as a decimal. (pg 6)

$$36\% = \underline{\hspace{2cm}}$$

$$8\% = \underline{\hspace{2cm}}$$

Write each decimal as a percent. (pg 8)

$$.89 = \underline{\hspace{2cm}}$$

$$.458 = \underline{\hspace{2cm}}$$

Write each fraction as a decimal. (pg 10)

$$\frac{3}{4} = \underline{\hspace{2cm}} \qquad \frac{2}{5} = \underline{\hspace{2cm}}$$

Write each fraction as a percent. (pg 12)

$$\frac{1}{2} = \underline{\hspace{2cm}} \qquad \frac{4}{5} = \underline{\hspace{2cm}}$$

Solve each word problem. (pg 15)

What is 35% of 235? $\underline{\hspace{2cm}}$

25% of what number is 50? $\underline{\hspace{2cm}}$

What percent of 40 is 18? $\underline{\hspace{2cm}}$

6. When converting a fraction to a decimal, divide the _____ number by the _____ number.
 - a) bottom, top
 - b) top, bottom
7. You purchased a house for \$230,000. How much is the 15% down payment?
 - a) \$340.00
 - b) \$34,500
 - c) \$3,400
8. What is 3.6% as a decimal?
 - a) 360%
 - b) .36
 - c) .036
 - d) 3600
9. A football team played 56 games. If they won 75% of the games, how many did they win?
 - a) 75
 - b) 42
 - c) 50
 - d) 14
10. Write .257 as a percent.
 - a) 2.57%
 - b) 257%
 - c) 25.7%
 - d) .00257%
11. Sam has 125 cd's. Sam sells 30 for money. What percent of his cd's did he sell?
 - a) 50%
 - b) 20%
 - c) 24%

Workbook Practice

Circle the correct answers. Complete the practice without using notes or booklet. Check answers.

- 71% of 52 is ____?
 - 73.24
 - 36.92
 - .014
 - 140
- Judy found that 40% of 740 light bulbs were defective. How many of the bulbs were defective?
 - 1850
 - 296
 - 18.5
 - .05
- What percent of 165 is 300?
 - .55
 - 1.82%
 - 1.82
 - 55%
- When converting percent to decimal, move 2 places _____.
 - Left
 - Right
- Write $\frac{3}{8}$ as a percent.
 - .375
 - .00375%
 - 37.5%
 - 3.75%

What is a percent?

In the 1400's, the words "per cento" were used to describe a percent. Today, those words have been abbreviated to the symbol (%).

Percent means "per one hundred"
Symbol for percent is %

Example:

In a class of 100 students, if only 34 earned extra credit, 34 per 100 earned extra credit.

34 per 100 can be written as 34%

In problems that have more or less than 100, use the formula:

$$\frac{\text{Success}}{\text{Total}}$$

Example:

A puzzle has 300 pieces. If you have 225 placed, what percent of the puzzle is done?

$$\frac{\text{Success}}{\text{Total}} = \frac{225}{300} = \frac{75}{100} = 75\%$$

Convert percent to decimal.

Rules:

1. Move the decimal two places left.
2. Drop the % sign.

Write each percent as a decimal.

$$36\% = \overset{\underbrace{}}{36} = .36$$

$$22.5\% = \overset{\underbrace{}}{22.5} = .225$$

$$.5\% = \overset{\underbrace{}}{005} = .005$$

$$8\% = \overset{\underbrace{}}{08} = .08$$

$$127\% = \overset{\underbrace{}}{127} = 1.27$$

Word Problems Pg 16

1. $.03 \times 500 = 15$
2. $.35 \times 100 = \$35$
3. $.75 \times 90 = \$67.5$
4. $.085 \times 30 = 2.55$
5. $1.28 \times 12 = 15.36$
6. $.15 \times 1950 = 292.5$
7. $25.5 \div .30 = 85$
8. $5643 \div .54 = 10450$
9. $69.2 \div .40 = 173$
10. $300 \div .05 = 6000$
11. $99.63 \div .027 = 3690$
12. $135 \div 300 = .45 = 45\%$
13. $78.30 \div 217.5 = .36 = 36\%$
14. $2.52 \div 21 = .12 = 12\%$

Word Problems Pg 17

1. $130,000 \times .20 = 26,000$
2. $.55 \times 360 = 198$
3. $78 \div 98 = .7959 = 79.6\%$
4. $36 \div 450 = 8\%$
5. $120 \div .04 = 3000$
6. A. $.26 \times 23000 = 5980$
B. $5980 \div 12 = \$498.33$
7. A. $1 \div 5 = 20\%$
B. $2 \div 5 = 40\%$
8. A. $.75 \times 48 = 36$
B. $48 - 36 = 12$

Solutions

Convert percent to decimal. Pg 7

1. .25 2. .05 3. .026 4. 1.27 5. .42
 6. .03 7. .297 8. .0009 9. .12 10. .52
 11. .989 12. .35683 13. .08 14. .681

Convert decimal to percent. Pg 9

1. 83% 2. 57% 3. 7% 4. 125% 5. 39%
 6. 3.5% 7. 325% 8. 71% 9. .4% 10. 69.4%
 11. 65.8% 12. 98.725% 13. .0258%
 14. 22%

Convert fraction to decimal. Pg 11

1. .50 2. .75 3. .63 4. .6 5. .11
 6. .81 7. .43 8. .81

Convert fraction to percent. Pg 13

1. $.63 = 63\%$ 2. $.6 = .60\%$ 3. $.57 = 57\%$
 4. $.9 = 90\%$ 5. $.58 = 58\%$ 6. $1.33 = 133\%$
 7. $.67 = .67\%$ 8. $.12 = 12\%$

Practice

Write each percent as a decimal.

| | Percent | Decimal |
|-----|---------|---------|
| 1. | 25% | _____ |
| 2. | 5% | _____ |
| 3. | 2.6% | _____ |
| 4. | 127% | _____ |
| 5. | 42% | _____ |
| 6. | 3% | _____ |
| 7. | 29.7% | _____ |
| 8. | .09% | _____ |
| 9. | 12% | _____ |
| 10. | 52% | _____ |
| 11. | 98.9% | _____ |
| 12. | 35.683% | _____ |
| 13. | 8% | _____ |
| 14. | 68.1% | _____ |

15. In your own words, describe how to convert a percent to decimal.

Convert decimal to percent.

Rules:

1. Move the decimal two places right.
2. Add the % sign.

Write each decimal as a percent.

$$.89 = \overset{89}{\underbrace{}} = 89\%$$

$$.458 = \overset{458}{\underbrace{}} = 45.8\%$$

$$.025 = \overset{25}{\underbrace{}} = 2.5\%$$

$$2.59 = \overset{259}{\underbrace{}} = 259\%$$

$$1.27 = \overset{127}{\underbrace{}} = 127\%$$

1. You purchase a house for \$130,000. You put 20% down. How much was the down payment?
2. In a recent survey, 55% of students read the newspaper. If 360 students were surveyed, how many read the newspaper?
3. Sam scored 75 out of a possible 98 on a recent math test. What is his percent grade? Round to the nearest tenths.
4. The tax on a \$450 printer is \$36. What percent was the tax?
5. The 4% sales tax on a travel trailer amounted to \$120. What was the sales price of the trailer?
6. Erykka spends 26% of her yearly salary on rent.
 - A. How much does she pay a year for rent if her yearly salary is 23000?
 - B. How much does she pay a month rounded to the nearest hundredth?
7. A mixture for concrete consists of two parts sand, two parts gravel. And one part cement.
 - A. What percent of the mixture is cement?
 - B. What percent of the mixture is gravel?
8. From the results of a recent exam, 75% of 48 students got problem #5 correct.
 - A. How many got the answer correct?
 - B. How many got it wrong?

Word Problems

1. 3% of 500 is _____
2. 35% of \$100 is _____
3. 75% of \$90 is _____
4. 8.5% of 30 is _____
5. 128% of 12 is _____
6. 15% of 1950 is _____
7. 30% of what number is 25.5? _____
8. 54% of what number is 5,643? _____

9. 40% of what number is 69.2? _____
10. 5% of what number is 300? _____
11. 2.7% of what number is 99.63? _____
12. What percent of 300 is 135? _____
13. What percent of \$217.50 is \$78.30? _____
14. What percent of 21 is 2.52? _____

Practice

Write each decimal as a percent.

| | Decimal | Percent |
|-----|---------|---------|
| 1. | .83 | _____ |
| 2. | .57 | _____ |
| 3. | .07 | _____ |
| 4. | 1.25 | _____ |
| 5. | .39 | _____ |
| 6. | .035 | _____ |
| 7. | 3.25 | _____ |
| 8. | .71 | _____ |
| 9. | .004 | _____ |
| 10. | .694 | _____ |
| 11. | .658 | _____ |
| 12. | .98725 | _____ |
| 13. | .000258 | _____ |
| 14. | .22 | _____ |

15. In your own words, describe how to convert a decimal into a percent.

Convert fraction to decimal.

Rules:

1. Divide bottom number (denominator) by top number (numerator).

Example:

$$\frac{3}{4} = 4 \overline{) 3.00} \begin{array}{r} .75 \\ 28 \\ \hline 20 \\ 20 \\ \hline 0 \end{array}$$

Example:

$$\frac{2}{5} = 5 \overline{) 20} \begin{array}{r} .4 \\ 20 \\ \hline 0 \end{array}$$

Examples

What is 35% of 235?

$$\begin{aligned} ? &= .35 \times 235 \\ ? &= 82.25 \end{aligned}$$

25% of what number is 50?

$$\begin{aligned} .25 \times ? &= 50 \\ ? &= 50 \div .25 \\ ? &= 200 \end{aligned}$$

20 is what percent of 80?

$$\begin{aligned} 20 &= ? \times 80 \\ ? &= 20 \div 80 \\ ? &= .25 = 25\% \end{aligned}$$

What percent of 40 is 18?

$$\begin{aligned} ? \times 40 &= 18 \\ ? &= 18 \div 40 \\ ? &= .45 = 45\% \end{aligned}$$

78% of 256 is what number?

$$\begin{aligned} .78 \times 256 &= ? \\ 199.68 &= ? \end{aligned}$$

Word problems

Key Words

Here are the key words you need to remember to solve percent problems.

“of” means to multiply

“is” means equals

“what” or **“how many”**

Is what you need to find.

Use a **?** in place of these words.

Word Problems in a Nutshell

| <u>Question</u> | <u>How to solve.</u> |
|--|----------------------|
| What is A% of B ? | $A \times B$ |
| A% of B is what number? | $A \times B$ |
| A is what percent of B ? | $A \div B$ |
| B is A% of what number? | $B \div A$ |
| A% of what number is B ? | $B \div A$ |
| What percent of A is B ? | $B \div A$ |

**A% must be converted to a decimal.

**What percent problems, convert decimal to percent.

Practice

Write each fraction as a decimal.
Round each decimal to the nearest hundredth.

- | | Fraction | Decimal |
|----|--|---------|
| 1. | $\frac{1}{2}$ | _____ |
| 2. | $\frac{3}{4}$ | _____ |
| 3. | $\frac{5}{8}$ | _____ |
| 4. | $\frac{3}{5}$ | _____ |
| 5. | $\frac{1}{9}$ | _____ |
| 6. | $\frac{81}{100}$ | _____ |
| 7. | $\frac{3}{7}$ | _____ |
| 8. | $\frac{17}{21}$ | _____ |
| 9. | In your own words, describe how to convert a decimal into a percent. | |

Convert fraction to percent.

Rules:

1. Divide bottom number (denominator) by top number (numerator).
2. Move Decimal two places right.
3. Add % sign.

Example:

$$\frac{1}{2} = 2 \overline{) 1.0} \begin{array}{r} .5 \\ 20 \\ \hline 0 \end{array}$$

$.5 = 50\%$

Example:

$$\frac{4}{5} = 5 \overline{) 4.0} \begin{array}{r} .8 \\ 40 \\ \hline 0 \end{array}$$

$.8 = 80\%$

Practice

Write each fraction as a percent. Round each decimal to the nearest hundredth if necessary.

- | | Decimal | | Percent |
|----|------------------------|---|---------|
| 1. | $\frac{5}{8} =$ _____ | = | _____ |
| 2. | $\frac{3}{5} =$ _____ | = | _____ |
| 3. | $\frac{4}{7} =$ _____ | = | _____ |
| 4. | $\frac{9}{10} =$ _____ | = | _____ |
| 5. | $\frac{7}{12} =$ _____ | = | _____ |
| 6. | $\frac{4}{3} =$ _____ | = | _____ |
| 7. | $\frac{2}{3} =$ _____ | = | _____ |
| 8. | $\frac{3}{25} =$ _____ | = | _____ |

9. Explain in your own words how to convert a fraction into a percent.