

Chapter 4- Understanding Percent
Sections 4.3: Percent of a Number

4.3 Warm Up

1. Complete the factors for each number.

a) $\begin{array}{c} 200 \\ / \quad \backslash \\ 2 \times \underline{100} \end{array}$ $\begin{array}{c} 200 \\ / \quad \backslash \\ 5 \times \underline{40} \end{array}$ $\begin{array}{c} 200 \\ / \quad \backslash \\ 10 \times \underline{20} \end{array}$ $\begin{array}{c} 200 \\ / \quad \backslash \\ 50 \times \underline{4} \end{array}$

b) $\begin{array}{c} 150 \\ / \quad \backslash \\ 3 \times \underline{50} \end{array}$ $\begin{array}{c} 150 \\ / \quad \backslash \\ 5 \times \underline{30} \end{array}$ $\begin{array}{c} 150 \\ / \quad \backslash \\ 10 \times \underline{15} \end{array}$ $\begin{array}{c} 150 \\ / \quad \backslash \\ 50 \times \underline{3} \end{array}$

2. Change each percent to a decimal.

Divide by 100.

a) $55\% = \underline{0.55}$ b) $200\% = \underline{2.00}$
 c) $140\% = \underline{1.40}$ d) $6\% = \underline{0.06}$

3. Divide.

a) $1.5 \div 100 = \underline{0.015}$ b) $0.55 \div 100 = \underline{0.0055}$
 c) $20.35 \div 100 = \underline{0.2035}$ d) $3.75 \div 100 = \underline{0.0375}$

4. Write each percent as a decimal.

a) $\frac{1}{4}\% = 0.25$
 $= 0.\underline{25}\%$
 $= 0.\underline{25} \div 100$
 $= \underline{0.0025}$

b) $\frac{1}{2}\% = 0.5$
 $= 0.\underline{0.5}\%$
 $= 0.\underline{0.5} \div 100$
 $= 0.\underline{0.005}$

$0.75 \div 100$ c) $\frac{3}{4}\% = 0.0075$

d) $\frac{3}{5}\% = 0.006$ $\frac{3}{5} = \frac{0.6}{100}$

5. Fill in the blanks.

a) Half of 60 is 30 b) Double 25 is 50
 c) $1000 \div 10 = \underline{100}$ d) $10\,000 \div 10 = \underline{1000}$

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Today, we will use two methods to find the percent of a number.

- 1) using Mental Math (no calculator)
- 2) using decimals (calculator allowed)

METHOD #1: MENTAL MATH

Using mental math requires you to know how to use the following strategies:

- doubling and halving
- dividing by 10

METHOD #2: USING DECIMALS

Using decimals required you to know how to change percents to decimals:

- divide by 100

Example 1: Find 250% of \$10.

Method #1:

$$250\% \text{ of } 20 = \frac{250}{100} \times 20 = \frac{15000}{100} = 150$$

100% of \$10 is = \$10
 100% of \$10 is = \$10
 50% of \$10 is = \$5

 250% of 10 is = \$25

$$\begin{aligned} 250\% &= 100\% \\ &+ 100\% \\ &+ 50\% \end{aligned}$$

Method #2:

1 change from Percent to decimals

$$250\% = 2.5$$

2 multiply the decimal by \$10 = 2.5 x 10 = \$25

Exercise: Try to find 310% of \$50.

Method #1:

100% of \$50 = 50
 100% of \$50 = 50
 100% of \$50 = 50
 ÷10 → 10% of \$50 = 5

$$310 = 100 + 100 + 100 + 10$$

$$50 + 50 + 50 + 5 = 155$$

Method #2:

$$\frac{310}{100} \times 50 = \$155$$

Example #2: Find 0.1% of \$4000
 Use Mental Math

÷100 → 100% of 4000 = 4000
 ÷100 → 1% of 4000 = 40
 ÷10 → 0.1% of 4000 = 4

Use Decimals and the calculator

$$\frac{0.1}{100} \times 4000 = \boxed{\$4}$$

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Example #3: Find $5\frac{1}{4}\%$ of \$20,000

Use Mental Math

100% OF 20,000 = 20,000
 10% OF 20,000 = 2,000
 5% OF 20,000 = 1,000
 1% OF 20,000 = 200
 $\frac{1}{4}\%$ OF 20,000 = $\frac{200}{4} = 50$
 $5\frac{1}{4}\% = 1,050$

Use Decimals and the calculator

$5\% = \frac{5}{100}$
 $\frac{1}{4}\% = 0.25\%$
 $5\frac{1}{4}\% = 5.25\%$
 5.25% OF 20,000
 $\frac{5.25}{100} \times 20,000 = 1,050$

Example #4: Commission is the amount of money earned by sales people. It is based on a portion of total sales.

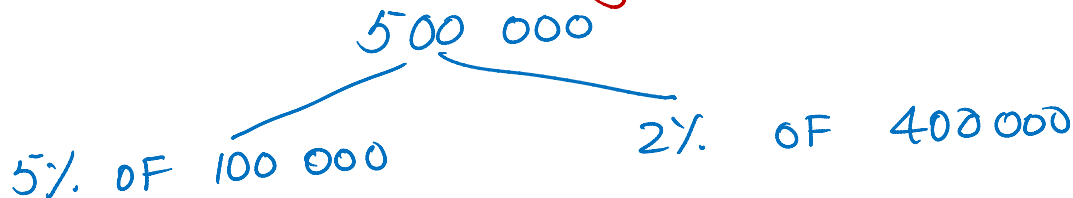
- a) Johnny receives 3% commission on all his Boxing Day sales at Future Shop. He sold \$14,000 worth of stuff on that day. How much commission did he earn?

3% \$14,000

$Commission = \% \times Sales$
 $= \frac{3}{100} \times 14,000 = \420

- b) Fred, who is a real estate agent (sells homes) receives 5% commission on the first \$100,000 of a house's selling price, and 2% on the remaining amount. If he sold a house for \$500,000, how much commission did he make on the sale of the house?

5% For the First \$100,000
 2% on the remaining } = Percentage



$\frac{5}{100} \times 100,000 = 5,000$

$\frac{2}{100} \times 400,000 = 8,000$

Total Commission = $5,000 + 8,000$
 $= \$13,000$



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Percentage Worksheet 2

1a. What is 50.8% of 142?

1b. What is 25.7% of 72?

2a. What is 16.8% of 24?

2b. What is 88.7% of 54?

3a. What is 92.9% of 109?

3b. What is 36.4% of 135?

4a. What is 79.1% of 31?

4b. What is 31.6% of 19?

5a. What is 78.8% of 62?

5b. What is 58.7% of 30?

6a. What is 87.6% of 56?

6b. What is 22.6% of 96?

7a. What is 91.5% of 4?

7b. What is 76.6% of 82?

8a. What is 68.2% of 119?

8b. What is 60.7% of 123?

9a. What is 46.4% of 49?

9b. What is 67.8% of 126?

10a. What is 58% of 86?

10b. What is 53.8% of 12?

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