

6th Grade Topic 6 Guided Notes

Lesson 6-1

A _____ is a rate in which the first term is compared to 100.

The percent is the number of hundredths that represents the part of the _____.

Percent is always out of _____!

In 8–10, use an equivalent fraction to find each percent.

$$8. \frac{1 \times \boxed{}}{5 \times \boxed{}} = \frac{20}{\boxed{}} = \boxed{}\%$$

$$9. \frac{3 \times \boxed{}}{10 \times \boxed{}} = \frac{30}{\boxed{}} = \boxed{}\%$$

$$10. \frac{11 \times \boxed{}}{20 \times \boxed{}} = \frac{55}{\boxed{}} = \boxed{}\%$$

- 16. Choose Efficient Methods** Your friend shows you a coin collection. In it, $\frac{45}{50}$ of the coins are quarters. What percent of the coins are quarters?

- 17. Use Patterns and Structure** In a race, 19 out of 50 runners finished in less than 30 minutes. What percent of the runners finished in less than 30 minutes? Write an equivalent fraction to find the percent.

Write the percent as a reduced fraction

$$62\% =$$

$$40\% =$$

Lesson 6-2

Review

Goal #1: Write a Decimal as a Fraction

- Use the _____ of a decimal to determine the _____
- Simplify!
- If a decimal has a whole number before the decimal point, you will write a mixed number.

0.94

0.24

0.3

2.1

Goal #2: Write a Fraction as a Decimal

- Divide the _____ by the _____ *

$$\frac{4}{5}$$

$$\frac{5}{8}$$

$$\frac{12}{13}$$

Relate Fractions, Decimals, and Percents

Fractions, decimals and percents are three ways to show parts of the

_____.

10. 0.25

$$0.25 = \frac{\boxed{}}{100} = \boxed{}\%$$

$$0.25 = \frac{\boxed{} \div 25}{100 \div \boxed{}} = \frac{\boxed{}}{4}$$

11. $\frac{2}{2}$

$$\frac{2}{2} = \frac{2 \times \boxed{}}{2 \times \boxed{}} = \frac{100}{100} = \boxed{}\%$$

$$\frac{2}{2} = 2 \div \boxed{} = \boxed{}.0$$

12. 7%

$$7\% = \frac{\boxed{}}{100}$$

$$7\% = \frac{\boxed{}}{100} = 0.\boxed{}$$

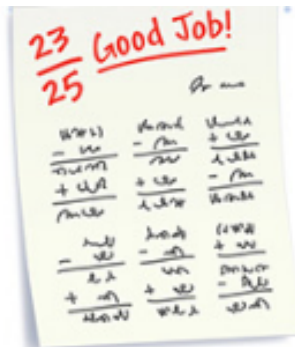
In 5–7, write each number in equivalent forms using the two other forms of notation: fraction, decimal, or percent.

5. 27%

6. 0.91

7. $\frac{6}{100}$

- 16.** Jackson answered 23 out of 25 problems on a math test correctly. What percent of the problems did Jackson answer correctly?



Lesson 6-3

Represent Percents Greater Than 100 or Less Than 1

Write 140% as a decimal and a fraction. _____ rules, just larger or smaller numbers!

Fraction

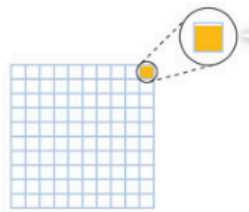
Decimal

Try It! The area of a new movie theater is 225% of the area of the old theater. What is 225% as a fraction and as a decimal?

Write the percent of the solution that is water as a fraction and as a decimal.



0.9% of this solution is water.



Write 0.9% as a fraction.

Write 0.9% as a decimal.

Try It! Write each percent as a fraction and as a decimal.

a. $\frac{2}{5}\%$

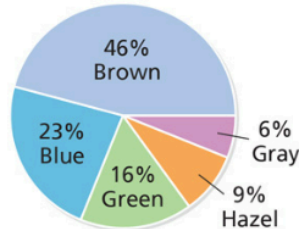
b. 0.3%

Lesson 6-4

This graph shows the eye colors of 500 students at a school. About how many students have brown eyes? About how many have blue eyes?

Generalize How can you use what you know about percents and their fraction equivalents to estimate?

Eye Color



According to the graph, 46% of the students have brown eyes.

Estimate 46% of 500.

$$46\% \approx 50\% \text{ and } 50\% = \frac{1}{2}$$

So, 46% of 500 is about $\frac{1}{2}$ of 500.

$$\frac{1}{2} \times 500 = 250$$

About 250 students have brown eyes.

According to the graph, 23% of the students have blue eyes.

Estimate 23% of 500.

$$23\% \approx 25\% \text{ and } 25\% = \frac{1}{4}$$

So, 23% of 500 is about $\frac{1}{4}$ of 500.

$$\frac{1}{4} \times 500 = 125$$

About 125 students have blue eyes.

Use the results of the survey shown at the right. About how many high school students plan to get a summer job?

Choose Efficient Methods

You can use rounding or compatible numbers to find a reasonable estimate of how many students plan to get a summer job.

53% of 94 students surveyed plan to get a summer job.



ONE WAY Use rounding to estimate 53% of 94.

53% of 94 94 rounds to 90.

$$53\% \approx 50\% \text{ and } 50\% = \frac{1}{2}$$

$$\frac{1}{2} \times 90 = 45$$

About 45 students plan to get a summer job.

ANOTHER WAY Use compatible numbers to estimate 53% of 94.

53% of 94 100 is a compatible number for 94.

$$53\% \approx 50\% \text{ and } 50\% = \frac{1}{2}$$

$$\frac{1}{2} \times 100 = 50$$

About 50 students plan to get a summer job.

Both 45 and 50 are good estimates for the number of students who plan to get a summer job.

47% of 77

$$47\% \approx \boxed{} \quad 77 \approx \boxed{}$$

$$\boxed{} \text{ of } \boxed{} = \boxed{}$$

Lesson 6-5

Find the Percent of a Number

To find the percent of a number:

1. Convert the percent to a _____
2. Multiply the decimal by the _____



Write an equation.

$$x = 0.725 \cdot 60$$

$$x = 43.5$$

So, 43.5 is 72.5% of 60.

D'wayne plans to wallpaper 43.5 square feet.

x represents 72.5% of 60.
Multiply 72.5% by 60 to find x .

What is 5% of 210?

$$x = \boxed{} \times 210$$

$$x = \boxed{}$$

13. What is 8.2% of 500?

$$x = \boxed{} \times 500$$

$$x = \boxed{}$$

What is 8% of 35?

What is 25% of 80?

In 20–22, use the circle graph.

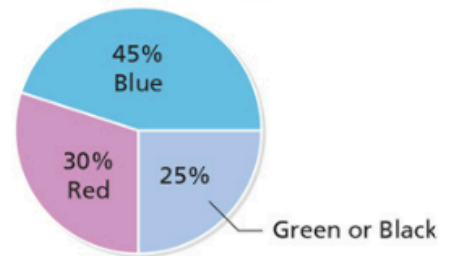
There are 180 cars in a parking lot. The colors of the cars are represented in the circle graph.

20. How many blue cars are there?

21. How many red cars are there?

22. **Choose Efficient Methods** There are 27 more green cars than black cars in the parking lot. What percent of the cars in the parking lot are green? What percent are black?

Colors of Cars in Parking Lot



The meal tax at a restaurant is 5.5%. What is the meal tax on a dinner that costs \$24?

Dinner	\$24.00
MEAL TAX, 5.5%	
TOTAL	
Thank You • Please Come Again	

Lesson 6-6

Find the Whole Given a Part and the Percent

Percent Proportion: $\frac{\text{percent}}{100} = \frac{\text{part}}{\text{whole}}$

To solve these, think ____ over _____. Is=part Of=whole

This is set up the same way we did cross multiplication with ratios/rates

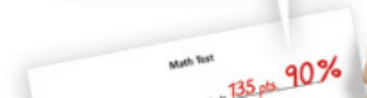


EXAMPLE 1

Find the Whole in a Percent Problem

Bree scored 90% on her math test. Out of the total possible points on the test, her score was 135 points. How many points were possible on the test?

Think: 90% of what number is 135?



EXAMPLE 3

Find the Whole When the Percent Is a Decimal

62.5% of what number is 30?

5. 40% of what number is 80?

10. 35% of what number is 91?

12. 87.5% of what number is 49?

13. What percent of 120 is 28.8?

14. What percent of 50 is 13?