• Percents

A part of a whole can be named with a fraction, with a decimal number, or with a percent. **Percent** means per hundred. Fifty of the 100 squares below are shaded, or $\frac{50}{100}$. This means that 50% are shaded.

$\frac{1}{2}$ of the square is shaded.
0.50 of the square is shaded.
50% of the square is shaded.
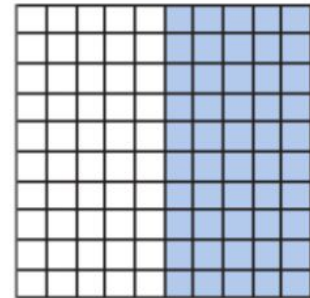
We read 50% as "fifty percent." A percent is expressed as a fraction with a denominator of 100. The percent sign (%) represents the denominator 100.

$$50\% \text{ means } \frac{50}{100}$$

Just as 50 cents is $\frac{1}{2}$ of a whole dollar, 50 percent is $\frac{1}{2}$ of a whole. The close relationship between cents and percents can help us understand percents.
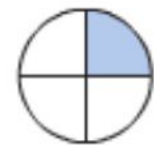
One half of a dollar is 50 cents.

One half is shaded.
50% is shaded.

One fourth of a dollar is 25 cents.

One fourth is shaded.
25% is shaded.

One tenth of a dollar is 10 cents.

One tenth is shaded.
10% is shaded.

Naming Percents of a Dollar

Connect Solve:

1. A quarter is what fraction of a dollar?

2. A quarter is what percent of a dollar?

3. A dime is what fraction of a dollar?

4. A dime is what percent of a dollar?

Discuss One dollar is what fraction of five dollars? Explain the relationship as a percent.

5. A penny is what fraction of a dollar?

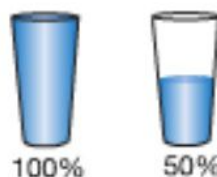6. A penny is what percent of a dollar?

7. A nickel is what fraction of a dollar?

8. A nickel is what percent of a dollar?

Estimating Percents of a Whole

In the picture below, the glass on the left is 100% full. The glass on the right is 50% full.

100%　50%

Multiple Choice In problems **9–12,** estimate to find the best choice for how full each glass is.

9. This glass is about what percent full?

    A 20%   B 40%

    C 60%   D 80%

10. This glass is about what percent full?

    A 25%   B 50%

    C 75%   D 100%

11. This glass is about what percent full?

    A 20%   B 40%

    C 60%   D 80%

12. This glass is about what percent full?

    A 20%   B 40%

    C 60%   D 80%

Analyze Write each percent:

13. If 40% of this circle is shaded, then what percent is *not* shaded?

14. Seventy-five percent of the figure is shaded. What percent is *not* shaded?

15. If 80% of the answers were correct, then what percent of the answers were *not* correct?

Connect Write the answers for problems **13** and **15** as a fraction and as a decimal.

16. **Analyze** If the chance of rain is 10%, then what is the chance that it will *not* rain?

Comparing Percents to one Half

Explain Complete each comparison in problems **17–19**, and explain the reason for each of your answers.

17. Compare: 48% $\bigcirc$ $\frac{1}{2}$

18. Compare: 52% $\bigcirc$ $\frac{1}{2}$

19. Compare: 50% $\bigcirc$ $\frac{1}{3}$

20. Forty percent of the students in the class were boys. Were there more boys or girls in the class? Explain your answer.