

OUT OF 100  
**The Percent Proportion**

$$\frac{\text{PART}}{\text{WHOLE}} = \frac{\text{PERCENT}}{100}$$

WHAT IS 20% OF 60?

$$\frac{\text{PART}}{\text{WHOLE}} = \frac{\text{PERCENT}}{100}$$

$$\frac{x}{60} = \frac{20}{100}$$

12 is 20% of 60

16 IS WHAT PERCENT OF 64?

$$\frac{\text{PART}}{\text{WHOLE}} = \frac{\text{PERCENT}}{100}$$

$$\frac{16}{64} = \frac{x}{100}$$

16 is 25% of 64

→

~~$$\frac{x}{60} = \frac{20}{100}$$~~

$$60(20) = 100(x)$$

$$\frac{1200}{100} = \frac{100x}{100}$$

← COEFFICIENT

$$12 = x$$

~~$$\frac{16}{64} = \frac{x}{100}$$~~

← COEFFICIENT

$$64(x) = 16(100)$$

$$\frac{64x}{64} = \frac{1600}{64}$$

←

$$x = 25$$

# The Percent Proportion

$$\frac{\text{PART}}{\text{WHOLE}} = \frac{\text{PERCENT}}{100}$$

PART  
↓  
15 IS WHAT  
PERCENT OF 60?  
↑  
WHOLE  
25%

$$\frac{15}{60} = \frac{x}{100}$$

$$15(100) = 60(x)$$

COEFFICIENT

$$\frac{1500}{60} = \frac{60x}{60}$$

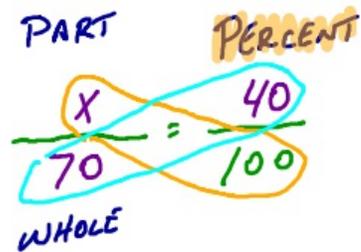
$$25 = x$$

$$60 \overline{) 1500}$$

$$\begin{array}{r} 25 \\ 6 \overline{) 150} \\ \underline{12} \phantom{0} \\ 30 \\ \underline{30} \\ 0 \end{array}$$

¿ WHAT NUMBER IS 40% OF 70?

28 IS 40% OF 70.



COEFFICIENT

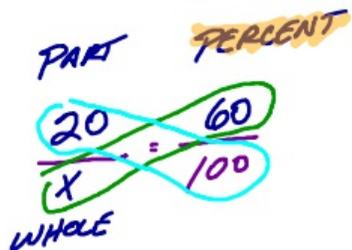
$$\frac{100(x)}{100} = \frac{40(70)}{100}$$

$$100x = 2800$$

$$x = 28$$

¿ 20 IS 60% OF WHAT NUMBER?

20 IS 60% OF  $33.\bar{3}$  ←  $33\frac{1}{3}$



COEFFICIENT

$$20(100) = 60(x)$$

$$\frac{2000}{60} = \frac{60x}{60}$$

$$x = 33.\bar{3}$$

$$61 \overline{) 2007}$$

$$6 \overline{) 200.0}$$

$$\begin{array}{r} 33.\bar{3} \\ 6 \overline{) 200.0} \\ \underline{18} \phantom{0} \\ 20 \phantom{0} \\ \underline{18} \phantom{0} \\ 20 \phantom{0} \\ \underline{18} \phantom{0} \\ 20 \phantom{0} \end{array}$$

## Lesson 2-3 The Percent Proportion

A **percent proportion** compares part of a quantity to a whole quantity for one ratio and lists the percent as a number over 100 for the other ratio.

$$\left. \begin{array}{l} \text{part} \rightarrow \frac{p}{w} \\ \text{whole} \rightarrow \frac{n}{100} \end{array} \right\} \text{percent}$$

### Example 1

What percent of 24 is 18?

$$\frac{p}{w} = \frac{n}{100}$$

Percent proportion

Let  $n\%$  represent the percent.

$$\frac{18}{24} = \frac{n}{100}$$

Write the proportion.

$$18 \times 100 = 24 \times n$$

Find the cross products.

$$1,800 = 24n$$

Simplify.

$$\frac{1,800}{24} = \frac{24n}{24}$$

Divide each side by 24.

$$75 = n$$

So, 18 is 75% of 24.

### Example 2

What number is 60% of 150?

$$\frac{p}{w} = \frac{n}{100}$$

Percent proportion

Let  $n\%$  represent the percent.

$$\frac{n}{150} = \frac{60}{100}$$

Write the proportion.

$$n \times 100 = 150 \times 60$$

Find the cross products.

$$100n = 9,000$$

Simplify.

$$\frac{100n}{100} = \frac{9,000}{100}$$

Divide each side by 100.

$$n = 90$$

So, 90 is 60% of 150.

*PART, WHOLE, PERCENT*

### Exercises

Find each number. Round to the nearest tenth if necessary.

1. What number is 25% of 20?

*25% → PERCENT*  
*20 → WHOLE*  
 $\frac{x}{20} = \frac{25}{100}$

2. What percent of 50 is 30?

*50 → WHOLE*  
*30 → PART*  
 $\frac{30}{50} = \frac{x}{100}$

3. 30 is 75% of what number?

4. 40% of what number is 36?

*40% → PERCENT*  
*36 → PART*  
 $\frac{36}{x} = \frac{40}{100}$

5. What number is 20% of 625?

6. 12 is what percent of 30?

## Lesson 3 Skills Practice The Percent Proportion

Find each number. Round to the nearest tenth if necessary.

1. 50 is 20% of what number?

2. What percent of 20 is 4?

5. What number is 45% of 180?

6. 40% of what number is 82?

9. What number is 32% of 1,000?

10. What percent of 125 is 5?

13. What percent of 185 is 35?

14. 25 is what percent of 365?

17. What percent of 128 is 24?

18. 5.25% of 170 is what number?

19. What is 82% of 230?

20. What percent of 49 is 7?