

Name: \_\_\_\_\_ Block: \_\_\_\_\_ Date: \_\_\_\_\_

Percent Proportion

In a percent proportion, part is to base as percent is to 100:

$$\frac{\text{part}}{\text{base}} = \frac{\text{percent}}{100}$$

Example 1: Find the Percent

5 is what percent of 8?

We know: part (5), base (8)

We don't know: percent (p)

Plug into percent proportion:  $\frac{\text{part}}{\text{base}} = \frac{\text{percent}}{100} \rightarrow \frac{5}{8} = \frac{p}{100}$

$\rightarrow 8p = 500$  (use cross products)

$\rightarrow p = 62.5$

Therefore 5 is 62.5% of 8.

Example 2: Find the Part

What number is 75% of 4?

We know: percent (75), base (4)

We don't know: part (a)

Plug into percent proportion:  $\frac{\text{part}}{\text{base}} = \frac{\text{percent}}{100} \rightarrow \frac{a}{4} = \frac{75}{100}$

$\rightarrow 100a = 300$

$\rightarrow a = 3$

Therefore 3 is 75% of 4.

Example 3: Find the Base

52 is 40% of what number?

We know: part (52), percent (40)

We don't know: base (b)

Plug into percent proportion:  $\frac{\text{part}}{\text{base}} = \frac{\text{percent}}{100} \rightarrow \frac{52}{b} = \frac{40}{100}$

$\rightarrow 40b = 5200 \rightarrow b = 130$

Therefore 52 is 40% of 130.

## Percent Proportion Summary

Type	Example	Proportion
Find the Percent	3 is what percent of 4?	$\frac{3}{4} = \frac{p}{100}$
Find the Part	What number is 75% of 4?	$\frac{a}{4} = \frac{75}{100}$
Find the Base	3 is 75% of what number?	$\frac{3}{b} = \frac{75}{100}$

Another way to think about it...

You can also translate the questions into algebra to set up and solve percent proportions.

Keywords to remember:

OF	IS	WHAT...
Multiply (times)	Equals (=)	Variable (x)

Examples:

English:	3 is what percent of 4?	What number is 75% of 4?	3 is 75% of what number?
Translate:	$3 = x\% \cdot 4$ $3 = \frac{x}{100} \cdot 4$ $\frac{3}{4} = \frac{x}{100}$ $4x = 300$ $x = 75$	$x = 75\% \cdot 4$ $x = \frac{75}{100} \cdot 4$ $\frac{x}{4} = \frac{75}{100}$ $100x = 300$ $x = 3$	$3 = 75\% \cdot x$ $3 = \frac{75}{100} \cdot x$ $\frac{3}{x} = \frac{75}{100}$ $75x = 300$ $x = 4$

You try: Solve the problems using the percent proportion.

a) 72 is what percent of 160?	b) 36 is 72% of what number?	c) What is 44% of 175?
d) 27 is 90% of what number?	e) 17 is what percent of 85?	f) What is 85% of 150?