

Pre-Algebra

Essential Question: How can we represent part of a whole as a percent using an equation?

Do Now: Read each statement/scenario below. Identify the quantities as either the *part*, *percent* or *whole*. Take a look at the first example that has been done for you.

Statement/Scenario	(is)	Percent	(of)
	Part		=
1. 40% of the students on the field trip love the museum. If there are 20 students on the field trip, how many love the museum?	n	40%	20
2. 40% of the students on the field trip love the museum. If 20 students love the museum, how many students are on the field trip?	20	40%	n
3. 20 students on the field trip love the museum. If there are 40 students on the field trip, what percent love the museum?	20	n	40
4. 15 is what percent of 90?	15	n	90
5. What number is 10% of 56?	n	10%	56
6. 90% of a number is 180. What's the number?	180	90%	n

The Percent Equation



Think about this...

How would you find the answer to #'s 4, 5 and 6 from the Do Now?

Percent Equation	Statement (Words)	Equation (Symbols)
Part = % • Whole	4. 15 is what percent of 90?	$15 = n\% \cdot 90$
what number: N percent: % is: = of: ×	5. What number is 10% of 56?	$n = 10\% \cdot 56$
	6. 90% of a number is 180. What's the number?	$90\% \cdot n = 180$

- ① Translate ② change % to decimal if possible ③ isolate/solve for n

Using The Percent Equation to Solve Problems (Part = % • Whole)

1. What number is 45% of 90?

$$n = 45\% \cdot 90$$

$$n = (0.45)(90)$$

$$\boxed{n = 40.5}$$

2. 27 is 30% of what number?

$$27 = 30\% \cdot n$$

$$\frac{27}{0.30} = \frac{0.30n}{0.30}$$

$$\boxed{90 = n}$$

3. 25.5 is what percent of 85?

$$\frac{25.5}{85} = \frac{n\% \cdot 85}{85}$$

$$0.3 = n\%$$

$$\boxed{30\%}$$

4. 162% of 35 is what number?

$$162\% \cdot 35 = n$$

$$(1.62)(35) = n$$

$$\boxed{56.7 = n}$$

Turn and Talk



1. A number, A , is 150% of a number B . Is A greater than, less than or equal to B ? Explain.

$A > B$ because if it is 150% of B , we know that it is 1.5 times bigger than B .

2. Which statements represent the same number? Find the number n in each statement.

a. A number n is 20% of 55

b. 55 is 20% of a number n .

c. The product of $\frac{1}{5}$ and 55 is a number n .

d. 0.2 of 55 is a number n .

a.) $n = 20\% \cdot 55$
 $n = (0.20)(55)$
 $\boxed{n = 11}$

b.) $55 = 20\% \cdot n$
 $\frac{55}{0.20} = \frac{0.20n}{0.20}$
 $\boxed{275 = n}$

c.) $\frac{1}{5} \cdot 55 = n$
 $\boxed{11 = n}$

d.) $(0.2)(55) = n$
 $\boxed{11 = n}$

Summary

A whole is represented by 100%. The formula part = % • whole can be used to problem-solve when given two terms out of three from *part*, *whole* and *percent*.