

2-3 The Percent Proportion

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

19. 9 is 45% of what number?

SOLUTION:

Let w represent the whole.

$$\begin{aligned}\frac{\text{part} \rightarrow 9}{\text{whole} \rightarrow w} &= \frac{45}{100} \leftarrow \text{percent} \\ w \cdot 45 &= 9 \cdot 100 \\ 45w &= 900 \\ \frac{45w}{45} &= \frac{900}{45} \\ w &= 20\end{aligned}$$

So, 9 is 45% of 20.

ANSWER:

20

21. What percent of 60 is 12?

SOLUTION:

Let $n\%$ represent percent.

$$\begin{aligned}\frac{\text{part} \rightarrow 12}{\text{whole} \rightarrow 60} &= \frac{n}{100} \leftarrow \text{percent} \\ 12 \cdot 100 &= 60 \cdot n \\ 1,200 &= 60n \\ \frac{1,200}{60} &= \frac{60n}{60} \\ 20 &= n\end{aligned}$$

So, 12 is 20% of 60.

ANSWER:

20%

23. **Justify Conclusions** Roman has 2 red pencils in his backpack. If this is 25% of the total number of pencils, how many pencils are in his backpack? Explain.

SOLUTION:

Let w represent the whole.

$$\begin{aligned}\frac{\text{part} \rightarrow 2}{\text{whole} \rightarrow w} &= \frac{25}{100} \leftarrow \text{percent} \\ w \cdot 25 &= 2 \cdot 100 \\ 25w &= 200 \\ \frac{25w}{25} &= \frac{200}{25} \\ w &= 8\end{aligned}$$

So, Roman has 8 pencils in his backpack.

ANSWER:

8 pencils; $\frac{2}{8} = \frac{25}{100}$