**Lesson 8: Notes and Practice**

***Solve Percent Problems***

|  |  |  |
| --- | --- | --- |
| ***Find the missing part:*** | ***Find the missing percent:*** | ***Find the missing whole (or total):*** |
| *What is 20% of 25?* | *What percent of 30 is 15?* | *12 is 10% of what number?* |
| $$\frac{what is}{25}= \frac{20}{100}$$ | $$\frac{15}{30}= \frac{what \%}{100}$$ | $$\frac{12}{out of what \#}= \frac{10}{100}$$ |

|  |
| --- |
| In a **percent proportion,** one ratio compares a part to the whole. The other ratio is the equivalent percent written as a fraction with a denominator of 100.$$\begin{matrix}part \rightarrow \\whole \rightarrow \end{matrix}\frac{p}{w}=\left.\frac{n}{100}\right\} percent$$ |

**Example 1 Example 2**

**What percent of 25 is 18? What is 60% of 300?**

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

x4

x4

×4

$\frac{18}{25}=\frac{n}{100}$ Write the proportion. $\frac{p}{300} = \frac{60}{100}$ Write the proportion.

x3

÷3

$\frac{18}{25}$ = $ \frac{n}{100}$ Since 25 × 4 = 100, multiply 18 by 4. $\frac{n}{300}$ = $\frac{60}{100}$ Since 300 ÷ 3 = 100,

 then multiply 60 by 3.

72 = *n p* = 180

So, 18 is 72% of 25 So, **180** is 60% of 300.

**Example 3**

**60 is 40 % of what number?**

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

$\frac{60}{w}=\frac{40}{100}$ Write the proportion. So, 60 x 100 = 6000.

 Then 6000 ÷ 40 = 150.

 *w* = 150

$\frac{60}{w}$ = $ \frac{40}{100}$ Cross multiply 60 x 100. Then divide by 40. Therefore, 40% of **150** is 60.

**Exercises**

**Write a proportion and solve each problem.**

**1.** 60 is 20% of what number **2.** Peyton spent 60% of her allowance to buy a

 TV. If the TV cost $300, how much money

 did she have?

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

 $\frac{ }{}= \frac{ }{100 }$ $\frac{ }{ }= \frac{ }{ 100}$

**3.** 75 is 15% of what number? **4.** 40% of what number is 4?

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

 $\frac{ }{}= \frac{}{ 100 }$ $\frac{ }{}= \frac{ }{ 100}$

**5.** 9 is 36% of what number? **6.** 12 is what percent of 25?

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

 $\frac{ }{}= \frac{}{ 100 }$ $\frac{}{ }= \frac{}{ 100 }$