6-4 Percent of a Number

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The human body is made up mostly of water. In fact, about 67% of a person's total (100%) body weight is water. If Cameron weighs 90 pounds, about how much of his weight is water?

Recall that a percent is a part of 100. Since you want to know the part of Cameron's body that is water, you can set up and solve a proportion to find the answer.

$$\begin{array}{ll} Part \longrightarrow & \dfrac{67}{100} = \dfrac{n}{90} \longleftarrow Part \\ Whole \longrightarrow & \phantom{\dfrac{67}{100} = \dfrac{n}{90}} \longleftarrow Whole \end{array}$$

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Find the percent of each number.

30% of 50

$\dfrac{30}{100} = \dfrac{n}{50}$ *Write a proportion.*

$30 \cdot 50 = 100 \cdot n$ *Set the cross products equal.*

$1{,}500 = 100n$ *Multiply.*

$\dfrac{1{,}500}{100} = \dfrac{100n}{100}$ *Divide each side by 100 to isolate the variable.*

$15 = n$

30% of 50 is 15.

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Find the percent of each number.

30% of 50

$$\frac{30}{100} = \frac{x}{50}$$
$$1500 = 100x$$
$$x = 15$$

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Helpful Hint

When solving a problem with a percent greater than 100%, the *part* will be greater than the *whole*.

Find the percent of each number.

200% of 24

$$\frac{200}{100} = \frac{n}{24}$$ *Write a proportion.*

$$\frac{200}{100} = \frac{x}{24}$$

$$100x = 4800$$

$$x = 48$$

Find the percent of each number.

40% of 40

$$\frac{40}{100} = \frac{x}{40}$$

$$100x = 1600$$

$$x = 16$$

Find the percent of each number.

150% of 64

$$\frac{150}{100} = \frac{x}{64}$$

$$100x = 9,600$$

$$x = 96$$

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In addition to using proportions, you can find the percent of a number by using decimal equivalents.

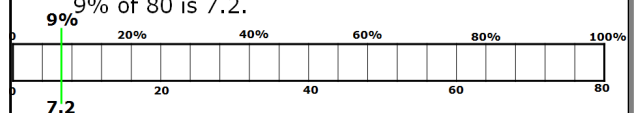**Find the percent of the number. Check whether your answer is reasonable.**

9% of 80

9% of 80 = 0.09 · 80   *Write the percent as a decimal and multiply.*

= 7.2

Model

Since 10% of 80 = 8, a reasonable answer for 9% of 80 is 7.2.

9%

0	9%	20%		40%		60%		80%		100%

0		20		40		60		80

7.2

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Find the percent of the number. Estimate to check whether your answer is reasonable.

3% of 12

3% of 12

$.03 \times 12 = 0.36$

Find the percent of the number. Check whether your answer is reasonable.

21% of 40

21% of 40

$.21 \cdot 40 = 8.4$

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Find the percent of the number. Estimate to check whether your answer is reasonable.

6% of 18

6% of 18

$.06 \cdot 18 = 1.08$

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The estimated world population in 2001 was 6,157 million. About 40% of the people were 19 or younger. What was the approximate number of people 19 or younger, to the nearest million?

Find 40% of 6,157 million.

$.40 \cdot 6,157$

$2,463$ million

The estimated world population in 2001 was 6,157 million. About 60% of the people were above 19 years of age. What was the approximate number of people 19 or older, to the nearest million?

Find 60% of 6,157 million.

$.60 \cdot 6,157$

$3,694$ million

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Lesson Quiz

Find the percent of each number.

1. 25% of 8 $\dfrac{25}{100} = \dfrac{x}{8}$ (2)

2. 40% of 110 $.40 \cdot 110$ (44)

Find the percent of each number. Check whether your answer is reasonable.

3. 150% of 96 $1.50 \cdot 96$ (144)

4. 0.3% of 120 0.3% $.003 \cdot 120 = (.36)$

5. Whitmer Middle School has 850 students. If 42% of the students bought lunch on Monday, how many student bought lunch on Monday?

$.42 \cdot 850 = 357$ students

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