Write Percents as Fractions

Brenda Meery
Jen Kershaw

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AUTHORS
Brenda Meery
Jen Kershaw

3.3 Write Percents as Fractions

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[Figure 1]

Apparently, if you can jump 2 m on Earth, you can jump 12 m on the moon. What percent of the height of a jump on Earth is the height of a jump on the moon?

In this concept, you will learn to write percent as fractions and fractions as percent.

Percents as Fractions

Percent can be written as ratios with a denominator of 100 or they can be written as decimals. Well, if they can be written as a ratio with a denominator of 100, then those ratios can be simplified as you would simplify any fraction. Likewise, any fraction can be written as a percent using reverse operations.

To write a percent as a fraction rewrite it as a fraction with a denominator of 100. Then reduce the fraction to its simplest form.

Let's look at an example.

Write 22% as a fraction.

First, write this as a fraction with a dominator of 100.

$$22\% = \frac{22}{100}$$

Next, simplify.

$$\frac{22}{100} = \frac{11}{50}$$

The answer is $\frac{11}{50}$.

To convert a fraction to a percent, first, you need to be sure that the fraction is being compared to a quantity of 100.

Let's look at one.

$$\frac{28}{100} = ?\%$$

This means that you have 28 out of 100.

Next, this fraction is being compared to 100, so you can simply change it to a percent.

$$\frac{28}{100} = 28\%$$

Here is another one.

Convert $\frac{3}{5}$ into a percent.

First, this fraction is not being compared to 100. It is being compared to 5. You have 3 out of 5. To convert this fraction to a percent, you need to rewrite it as an equal ratio out of 100. You can use proportions to do this. Write this ratio compared to a second ratio out of 100.

$$\frac{3}{5} = \frac{?}{100}$$

Next, use multiplication to create equal ratios or a proportion.

$$\begin{aligned} 5 \times 200 &= 100 \\ 3 \times 20 &= 60 \end{aligned}$$

Next, put these together.

$$\frac{3}{5} = \frac{60}{100}$$

Then, change the fraction to a percent.

$$\frac{60}{100} = 60\%$$

The answer is 60%.

Examples

Example 1

Earlier, you were given a problem about the lunar jump.

You know that you can jump 2 m on the earth and 12 m on the moon. You are trying to find the percent of the height on earth compared to the height on the moon.

First, write a fraction to represent this problem.

$$\frac{Earth}{Moon} = \frac{2}{12}$$

Next, write this as a proportion with a denominator of 100. Start by writing the fraction with x as the unknown numerator out of 100.

$$\frac{2}{12} = \frac{x}{100}$$

Next, cross multiply to solve for the unknown variable.

$$2(100) = 12(x)$$

Then, solve for "x" by dividing both sides of the equation by 12.

$$\begin{aligned} 2(100) &= 12(x) \\ 200 &= 12x \\ \frac{200}{12} &= \frac{12x}{12} \\ x &= 16.67 \end{aligned}$$

The answer is 16.67.

The jump on earth is 16.67% of the jump you can make on the moon.

Example 2

Jack's baseball team won 9 out of 12 games. What percent of the games played did the team win? What percent did of the games played did the team lose?

First, write the number of games won as a fraction.

$$\frac{9}{12}$$

Next, write this as a proportion with a denominator of 100. Start by writing the fraction with x as the unknown numerator out of 100.

$$\frac{9}{12} = \frac{x}{100}$$

Then, cross multiply to solve for the unknown variable.

$$9(100) = 12x$$

Then, solve for "x" by dividing both sides of the equation by 12.

$$\begin{aligned} 9(100) &= 12(x) \\ 900 &= 12x \\ \frac{900}{12} &= \frac{12x}{12} \\ x &= 75 \end{aligned}$$

The answer is 75.

The team wins 75% of the time.

The team then loses 25% of the time.

Example 3

Write $\frac{44}{100}$ as a percent.

First, remember that a percent means that the denominator is 100. Since this fraction is already out of 100, you can convert it to a percent.

$$\frac{44}{100} = 44\%$$

The answer is 44%.

Example 4

Write $\frac{1}{2}$ as a percent.

First, this fraction is not being compared to 100. It is being compared to 2. You need to rewrite it as an equal ratio out of 100. You can use proportions to do this. Write this ratio compared to a second ratio out of 100.

$$\frac{1}{2} = \frac{?}{100}$$

Next, use multiplication to create equal ratios or a proportion.

$$\begin{aligned} 2 \times 50 &= 100 \\ 1 \times 50 &= 50 \end{aligned}$$

Next, put these together.

$$\frac{1}{2} = \frac{50}{100}$$

Then, change the fraction to a percent.

$$\frac{50}{100} = 50\%$$

The answer is 50%.

Example 5

Write $\frac{5}{7}$ as a percent.

First, write this as a proportion with a denominator of 100. Start by writing the fraction with x as the unknown numerator out of 100.

$$\frac{5}{7} = \frac{x}{100}$$

Next, cross multiply to solve for the unknown variable.

$$5(100) = 7(x)$$

Then, solve for "x" by dividing both sides of the equation by 7.

$$\begin{aligned} 5(100) &= 7(x) \\ 500 &= 7x \\ \frac{500}{7} &= \frac{7x}{7} \\ x &= 71.4 \end{aligned}$$

The answer is 71.4%.

Review

Write the following percent values as fractions in simplest form.

1. 16%
2. 40%
3. 2%
4. 4%
5. 45%
6. 20%
7. 18%
8. 10%

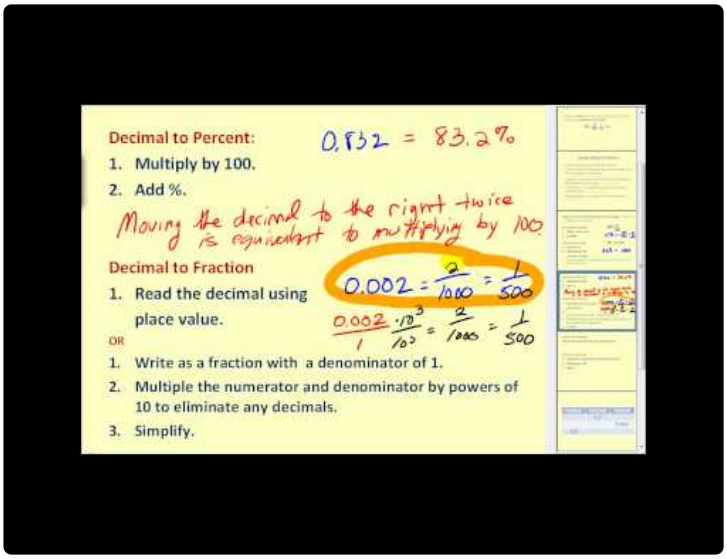
Write the following fractions as a percent. Round to the nearest whole percentage point.

9. $\frac{2}{3}$
10. $\frac{23}{30}$
11. $\frac{4}{75}$
12. $\frac{21}{2}$
13. $\frac{4}{5}$
14. $\frac{6}{10}$
15. $\frac{3}{25}$

Review (Answers)

To see the review answers, return to the Table of Contents and select 'Other Versions' or 'Resources'.

Resources



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