LESSON 18

Use Percents to Solve Problems

Learning Games

Match

Cupcake

Dear Family,

This week your student is learning how to use percents to solve problems.

Similar strategies can be used to solve two types of problems:

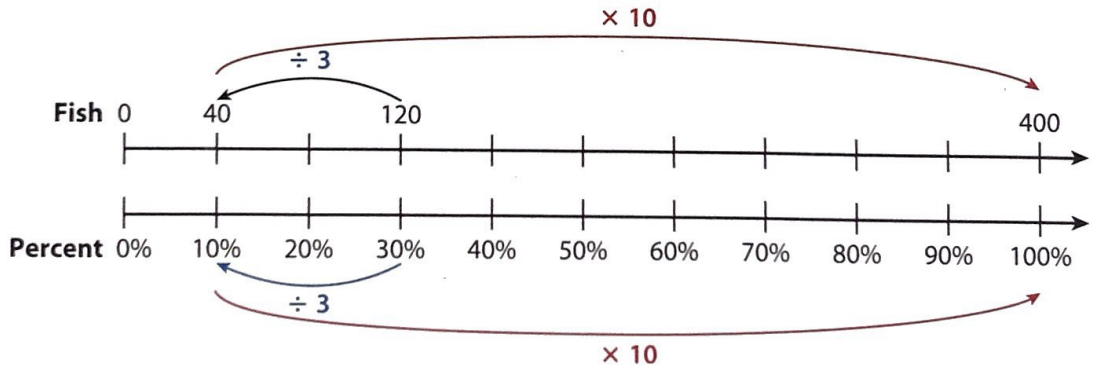
- A shirt costs $20 and is marked 40% off. How much money will you save?
- A shirt is on sale for 40% off. You will save $8. What was the original price?

Your student will be learning to solve problems like the one below.

> At an aquarium, 30% of the fish are freshwater fish. There are 120 freshwater fish. How many fish are at the aquarium?

➤ **ONE WAY** to find a whole amount when you know a part and the percent is to use a double number line.

You know that 120 is 30% of the whole. First, **divide by 3** to find 10%. Then, **multiply by 10** to find 100%.



➤ **ANOTHER WAY** is to make a table of equivalent ratios.

÷ 3 × 10

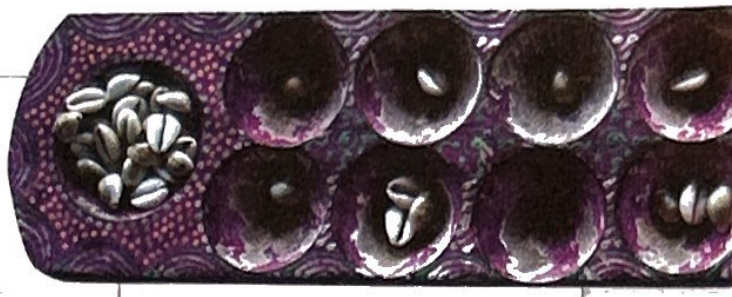
Fish	120	40	400
Percent (%)	30	10	100

÷ 3 × 10

parent signature

Using either method, there are 400 fish at the aquarium.

Use the next page to start a conversation about percents.



Explore Percent Problems

Previously, you learned about representing percents. In this lesson, you will learn about solving problems with percents.

➤ **Use what you know to try to solve the problem below.**

Carolina and Aniyah are playing in an Oware tournament. Who has the better winning record so far?

Wins	
Carolina	Aniyah
19 out of 25 games	17 out of 20 games

TRY IT

Math Toolkit double number lines, grid paper, hundredths grids

Carolina

$\frac{19}{25} = \frac{76}{100} = 76\%$

$\begin{array}{r} {}^{3}19 \\ \times\ 4 \\ \hline 76 \end{array}$

Aniyah

$\frac{17}{20} = \frac{85}{100} = 85\%$

$\begin{array}{r} {}^{3}17 \\ \times\ 5 \\ \hline 85 \end{array}$

Aniyah has a better winning record

DISCUSS IT

Ask: How did you decide which player has the better winning record?

Share: At first, I thought . . .

Learning Targets SMP 1, SMP 2, SMP 3, SMP 4, SMP 5, SMP 6, SMP 7, SMP 8

- Write a ratio as a percent and find a percent of a number.
- Find what percent one number is of another number.
- Find the whole when given a part and a percent.

CONNECT IT

1 Look Back Does Carolina or Aniyah have the better winning record? Explain how you know.

2 Look Ahead Carolina, Aniyah, and their friend Kyle keep track of how many Oware games they play and how many games they win during one month. They can use percents to compare their winning records.

a. Carolina wins 77 out of 100 games. What percent of her games does she win? Explain how you know.

77% $\frac{77}{100}$ is the same as 77%

b. Kyle wins 14 out of 20 games.

2
14
×5
70

$\frac{14}{20} = \frac{\boxed{70}}{100}$, so Kyle wins 70 % of his games.

c. Aniyah wins 32 out of 40 games. Complete the table of equivalent ratios.

		÷ 4	× 10
Part	32	8	80
Whole	40	10	100
		÷ 4	× 10

What is 32 out of 40 games expressed as a percent? 80%

d. Who has the best winning record? Explain how you know.

Aniyah has the best record because her winning percent Is the greatest

3 Reflect How can writing ratios as percents help you compare the ratios?

If you can make your ratio have a denominator equal to 100 then the numerator will be the percent.