● **Explore** Percent Change

Previously, you learned how to solve problems involving percents. In this lesson, you will learn about percent change.

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

A movie is edited at a movie studio in Burbank, California. Before editing, the movie is 120 min long. The edited movie is 25% shorter. What is the length of the edited movie?

TRY IT

🖊 **Math Toolkit** double number lines, grid paper

$$120(0.75) = 90$$

The edited movie is 90 minutes

DISCUSS IT

Ask: How would you explain what the problem is asking in your own words?
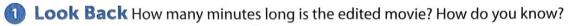
Share: The problem is asking . . .

◎ **Learning Targets** SMP 1, SMP 2, SMP 3, SMP 4, SMP 5, SMP 6, SMP 7, SMP 8
• Solve problems involving percent change.
• Solve problems involving percent error.

CONNECT IT

1 **Look Back** How many minutes long is the edited movie? How do you know?

90 minutes long.
I multiplied by the percent that was remaining (75%)

2 **Look Ahead** You can use a percent to describe the change in the length of the movie. A **percent change** is a percent that compares the change in a quantity to the original quantity.

$$\text{Percent Change} = \frac{\text{amount of change}}{\text{original amount}} \times 100$$

a. When the new amount is greater than the original amount, the percent change is called a **percent increase**. When the new amount is less than the original amount, the percent change is called a **percent decrease**. Is a discount a *percent increase* or a *percent decrease*? Explain.

Percent decrease. The new amount is less than the original because you are saving money.

b. **Percent error** compares the amount of error to the correct amount. The amount of error is the positive difference between the correct amount and an incorrect amount. You can also think of the positive difference as the absolute value of the difference.

$$\text{Percent Error} = \frac{\text{amount of error}}{\text{correct amount}} \times 100$$

A store sells 10-lb bags of apples. One of the bags actually weighs 9.9 lb. What is the amount of error? What is the correct amount?

error: 0.1 lb
correct: 10 lb

3 **Reflect** How are a percent error and a percent change similar? How are they different?

Each compare a difference to an amount.
A percent of change can be positive or negative
A percent error is always positive