



# Will It Always Work?

Let's make generalizations about multiplying a whole number by a fraction.

## Warm-up

### True or False: Distributing

Decide if each statement is true or false. Be prepared to explain your reasoning.

- $\frac{3}{4} = 1 - \frac{1}{4}$

- $(1 - \frac{1}{4}) \times 9 = 9 - (\frac{1}{4} \times 9)$

- $(1 + \frac{1}{4}) \times 7 = (1 \times 7) + \frac{1}{4}$

## Activity 1

### True Statements

Write  $>$ ,  $<$ , or  $=$  in each blank to make true statements.

Choose one problem to explain or show your reasoning.

1.  $567$  \_\_\_\_  $345 \times 567$

2.  $\frac{4}{5} \times 851$  \_\_\_\_  $851$

3.  $\frac{1}{4}$  \_\_\_\_  $\frac{5}{5} \times \frac{1}{4}$

4.  $\frac{103}{104}$  \_\_\_\_  $\frac{103}{104} \times \frac{103}{104}$

5.  $\frac{99}{8} \times \frac{23}{22}$  \_\_\_\_  $\frac{99}{8}$

6.  $\frac{10}{10} \times \frac{1}{2}$  \_\_\_\_  $\frac{1}{2}$

7.  $\frac{100}{7} \times \frac{9}{13}$  \_\_\_\_  $\frac{9}{13}$

## Activity 2

### Andre's Rules

Andre says:

- When you multiply any fraction by a number less than 1, the product will be less than the fraction.
- When you multiply any fraction by a number greater than 1, the product will be greater than the fraction.

Each partner chooses a different statement and describes why it is true. Show your thinking, using diagrams, symbols, or other representations.