

Fraction Effect Lab

See how a fraction changes a positive quantity.

GRADE 6 • TEKS 6.3.B

6.3.B "determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;"

NAME _____

DATE _____

PREDICT THE CHANGE

When you multiply a positive quantity by a fraction less than 1, the quantity decreases. When you multiply by a fraction greater than 1, the quantity increases. Multiplying by 1 keeps the quantity the same.

WORKED EXAMPLE

Find $18 \times \frac{5}{4}$. Tell whether the quantity increases or decreases.

1. $\frac{5}{4}$ is greater than 1, so the quantity will increase.
2. $18 \times \frac{5}{4} = (18/4) \times 5$
3. $= 45/2 = 22 \frac{1}{2}$

Answer: $22 \frac{1}{2}$, so the quantity increased.

PRACTICE 6 problems

- 1** Without multiplying, is $30 \times \frac{7}{8}$ greater than, less than, or equal to 30?

ANSWER _____

- 2** Compute $35 \times \frac{8}{7}$. Then tell whether the quantity increased or decreased.

ANSWER _____

- 3** Without multiplying, is $42 \times \frac{2}{3}$ greater than, less than, or equal to 42?

ANSWER _____

- 4** Compute $27 \times \frac{11}{6}$. Then tell whether the quantity increased or decreased.

ANSWER _____

- 5** x is positive. Compare x with x multiplied by $\frac{11}{11}$.

ANSWER _____

- 6** Compute $48 \times \frac{3}{2}$. Then tell whether the quantity increased or decreased.

ANSWER _____

APPLY IT Show your work

- 1** Nia records a 33-minute podcast episode. She trims it to $\frac{2}{3}$ of its original length. How long is the trimmed episode, and did its length increase or decrease?

WORK SPACE

ANSWER _____

- 2** A game gives Leo 26 points, then a bonus multiplies his points by $\frac{3}{2}$. How many points does he have after the bonus, and did his total increase or decrease?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A positive quantity is multiplied by $\frac{7}{9}$ and then multiplied by $\frac{3}{7}$. Is the final quantity greater than, less than, or equal to the original quantity? Explain your reasoning.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Without multiplying, is $30 \times \frac{7}{8}$ greater than, less than, or equal to 30?	Less than 30
2	Compute $35 \times \frac{8}{7}$. Then tell whether the quantity increased or decreased.	40, increased
3	Without multiplying, is $42 \times \frac{2}{3}$ greater than, less than, or equal to 42?	Less than 42
4	Compute $27 \times 1\frac{1}{6}$. Then tell whether the quantity increased or decreased.	49 $\frac{1}{2}$, increased
5	x is positive. Compare x with x multiplied by $\frac{11}{11}$.	They are equal
6	Compute $48 \times \frac{3}{2}$. Then tell whether the quantity increased or decreased.	72, increased

PART 2 • APPLY IT

- 22 minutes, decreased** Multiply 33 by $\frac{2}{3}$ to get 22. Because $\frac{2}{3}$ is less than 1, the length decreases.
- 39 points, increased** Multiply 26 by $\frac{3}{2}$ to get 39. Because $\frac{3}{2}$ is greater than 1, the total increases.

CHALLENGE

The final quantity is less than the original quantity. The combined multiplier is $\frac{7}{9} \times \frac{3}{7} = \frac{1}{3}$, and $\frac{1}{3}$ is less than 1.

Accept equivalent fraction, decimal, or mixed-number forms for computed products. For comparison items, accept clear language such as increased, decreased, greater than, or less than when it matches the answer.