LESSON MAKER PRO

Scale It Up

Use multiplication to tell how an amount changes size.

GRADE 5 · NY-5.NF.5

NY-5.NF.5 "Interpret multiplication as scaling (resizing)."

NAME _____ DATE _____

MULTIPLICATION RESIZES

When you multiply an amount by a number between 0 and 1, the product is smaller than the starting amount. When you multiply by a number greater than 1, the product is larger. Multiplying by 1 keeps the amount the same.

WORKED EXAMPLE

A ribbon is 2/11 yard long. It is scaled by 13/14. Find the new length. Is it greater or less than the original length?

1. 13/14 is less than 1, so the new length will be less than 2/11.
2. 2/11 × 13/14 = 26/154.
3. 26/154 = 13/77.

Answer: 13/77 yard, less than the original length

PRACTICE 6 problems

1 Find 3/4 × 5/6. Is the product greater or less than 3/4?

ANSWER _____

2 Find 7/9 × 3/7. Is the product greater or less than 7/9?

ANSWER _____

3 Find 4/5 × 1. Is the product greater than, less than, or equal to 4/5?

ANSWER _____

4 Find 5/8 × 9/5. Is the product greater or less than 5/8?

ANSWER _____

5 Find 6 × 3/10. Is the product greater or less than 6?

ANSWER _____

6 Find 12 × 4/9. Is the product greater or less than 12?

ANSWER _____

APPLY IT Show your work

1 The gaming club planned to print 24 badges. For a smaller event, it prints 3/4 as many badges. How many badges does it print? Is this number greater or less than 24?

WORK SPACE

ANSWER _____

2 A photo is 9 inches wide. In an art app, it is enlarged to 4/3 of its original width. What is the new width? Is this width greater or less than 9 inches?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game map is 36 cm wide. First, it is resized to 5/6 of its width. Then the resized map is enlarged by a factor of 6/5. What is the final width? Explain why the final width is equal to, greater than, or less than the original width.

WORK SPACE AND ANSWER

ANSWER KEY

Scale It Up

GRADE 5 · NY-5.NF.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 3/4 × 5/6. Is the product greater or less than 3/4?	**5/8, less than 3/4**
2	Find 7/9 × 3/7. Is the product greater or less than 7/9?	**1/3, less than 7/9**
3	Find 4/5 × 1. Is the product greater than, less than, or equal to 4/5?	**4/5, equal to 4/5**
4	Find 5/8 × 9/5. Is the product greater or less than 5/8?	**9/8, greater than 5/8**
5	Find 6 × 3/10. Is the product greater or less than 6?	**9/5, less than 6**
6	Find 12 × 4/9. Is the product greater or less than 12?	**16/3, less than 12**

PART 2 · APPLY IT

1. **18 badges, less than 24** Multiply 24 × 3/4 = 18. Since 3/4 is less than 1, the number of badges is smaller than 24.
2. **12 inches, greater than 9 inches** Multiply 9 × 4/3 = 12. Since 4/3 is greater than 1, the new width is greater than 9 inches.

CHALLENGE

36 cm. The scale factors multiply to 1 because 5/6 × 6/5 = 1, so the second resizing undoes the first resizing.

Accept equivalent fraction forms for all fractional products. For comparison statements, accept clear wording such as smaller, larger, or same size.