LESSON MAKER PRO

Scale It Up

Use fractions to resize quantities.

GRADE 5 · 5.NF.B.5

CCSS.Math.Content.5.NF.B.5 "Interpret multiplication as scaling (resizing), by:"

NAME _____ DATE _____

SCALE FACTORS

A fraction used as a scale factor changes the size of a quantity. A factor less than 1 makes the quantity smaller, and a factor greater than 1 makes it larger. Find the fraction of the quantity to calculate the new size.

WORKED EXAMPLE

Find 2/3 x 12. Tell whether 12 is enlarged or reduced.

1. First find 1/3 of 12: 12 / 3 = 4.
2. Then find 2/3: 2 x 4 = 8.
3. Because 2/3 is less than 1, the amount is reduced.

Answer: 8, reduced

PRACTICE 6 problems

1 Find 1/4 x 20. Is 20 enlarged or reduced?

ANSWER _____

2 Find 5/6 x 30. Is 30 enlarged or reduced?

ANSWER _____

3 Find 9/10 x 40. Is 40 enlarged or reduced?

ANSWER _____

4 Find 7/4 x 20. Is 20 enlarged or reduced?

ANSWER _____

5 Find 11/12 x 48. Is 48 enlarged or reduced?

ANSWER _____

6 Find 6/5 x 45. Is 45 enlarged or reduced?

ANSWER _____

APPLY IT Show your work

1 A game designer plans a 45-minute level. A special version is 6/5 as long as the planned level. How many minutes is the special version?

WORK SPACE

ANSWER _____

2 A robot's battery lasts 63 minutes in normal mode. In speed-test mode, it lasts 4/9 as long. How many minutes does the battery last in speed-test mode?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A rectangular poster is 36 cm wide. A printer first scales the width by 9/4. Then it scales the new width by 4/9. What is the final width? Explain why.

WORK SPACE AND ANSWER

ANSWER KEY

Scale It Up

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 1/4 x 20. Is 20 enlarged or reduced?	**5, reduced**
2	Find 5/6 x 30. Is 30 enlarged or reduced?	**25, reduced**
3	Find 9/10 x 40. Is 40 enlarged or reduced?	**36, reduced**
4	Find 7/4 x 20. Is 20 enlarged or reduced?	**35, enlarged**
5	Find 11/12 x 48. Is 48 enlarged or reduced?	**44, reduced**
6	Find 6/5 x 45. Is 45 enlarged or reduced?	**54, enlarged**

PART 2 · APPLY IT

1. **54 minutes** Find 1/5 of 45, which is 9. Then multiply 9 by 6 to get 54, and the level is longer because 6/5 is greater than 1.
2. **28 minutes** Find 1/9 of 63, which is 7. Then multiply 7 by 4 to get 28, and the battery lasts less time because 4/9 is less than 1.

CHALLENGE

36 cm. The factors 9/4 and 4/9 multiply to 1, so the second scaling reverses the first scaling.

Accept equivalent work that correctly finds each scaled amount. For scale direction, accept larger or smaller in place of enlarged or reduced.