LESSON MAKER PRO

Fraction Size Switch

See how fractions between 0 and 1 change a number.

GRADE 6 · 6.CE.1.c

6.CE.1.c "Investigate and explain the effect of multiplying or dividing a fraction, whole number, or mixed number by a number between zero and one.*"

NAME _____ DATE _____

THE BIG IDEA

Multiplying a positive number by a number between 0 and 1 makes the product smaller. Dividing a positive number by a number between 0 and 1 makes the quotient larger.

WORKED EXAMPLE

Find 14 × 5/7. Is the product greater or less than 14?



1. Write 14 as 14/1.
2. Multiply: 14/1 × 5/7 = 70/7.
3. Simplify: 70/7 = 10.
4. Since 5/7 is between 0 and 1, 10 is less than 14.

Answer: 10, less than 14.

PRACTICE 6 problems

1 Find 18 × 1/6. Before calculating, predict whether the result is less or greater than 18. Calculate and explain the effect. Mark the product on the line.



ANSWER _____

_____

2 Find 8/11 × 2/3. Before calculating, predict whether the result is less or greater than 8/11. Calculate and explain the effect.

ANSWER _____

_____

3 Find 6 1/2 × 2/13. Before calculating, predict whether the result is less or greater than 6 1/2. Calculate and explain the effect.

ANSWER _____

_____

4 Find 16 ÷ 1/8. Before calculating, predict whether the result is less or greater than 16. Calculate and explain the effect.

ANSWER _____

_____

5 Find 2/3 ÷ 1/6. Before calculating, predict whether the result is less or greater than 2/3. Calculate and explain the effect.

ANSWER _____

_____

6 Find 11/12 ÷ 3/8. Before calculating, predict whether the result is less or greater than 11/12. Calculate and explain the effect.

ANSWER _____

_____

APPLY IT Show your work

1 Maya has 24 minutes to work on a game design project. She uses 3/4 of that time to create character ideas. How many minutes does she use?

WORK SPACE

ANSWER

2 A streamer has 2/3 hour of recorded video. Each highlight clip is 1/9 hour long. How many highlight clips can be made?

WORK SPACE

ANSWER

CHALLENGE One step up

Jordan says that 4 1/2 ÷ 2/3 must be less than 4 1/2 because 2/3 is less than 1. Find the quotient and explain whether Jordan is correct.

WORK SPACE AND ANSWER

ANSWER KEY

Fraction Size Switch

GRADE 6 · 6.CE.1.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 18 × 1/6. Before calculating, predict whether the result is less or greater than 18. Calculate and explain the effect. Mark the product on the line.	**3; less than 18. Multiplying by a positive number less than 1 takes only part of the positive starting amount.**
2	Find 8/11 × 2/3. Before calculating, predict whether the result is less or greater than 8/11. Calculate and explain the effect.	**16/33; less than 8/11. Multiplying by a positive number less than 1 takes only part of the positive starting amount.**
3	Find 6 1/2 × 2/13. Before calculating, predict whether the result is less or greater than 6 1/2. Calculate and explain the effect.	**1; less than 6 1/2. Multiplying by a positive number less than 1 takes only part of the positive starting amount.**
4	Find 16 ÷ 1/8. Before calculating, predict whether the result is less or greater than 16. Calculate and explain the effect.	**128; greater than 16. Dividing by a positive number less than 1 counts subunit groups, giving a larger numerical quotient.**
5	Find 2/3 ÷ 1/6. Before calculating, predict whether the result is less or greater than 2/3. Calculate and explain the effect.	**4; greater than 2/3. Dividing by a positive number less than 1 counts subunit groups, giving a larger numerical quotient.**
6	Find 11/12 ÷ 3/8. Before calculating, predict whether the result is less or greater than 11/12. Calculate and explain the effect.	**22/9; greater than 11/12. Dividing by a positive number less than 1 counts subunit groups, giving a larger numerical quotient.**

PART 2 · APPLY IT

1. **18 minutes** Multiply 24 by 3/4. Since 3/4 is between 0 and 1, the result is less than 24.
2. **6 clips** Divide 2/3 by 1/9. Dividing by a fraction between 0 and 1 makes the quotient larger than 2/3.

CHALLENGE

6 3/4. Jordan is not correct. Dividing a positive number by 2/3, a number between 0 and 1, makes the quotient greater than 4 1/2.

Accept equivalent fractions and mixed numbers, including 2 4/9 for 22/9. For explanation responses, accept any correct statement that multiplying by a positive fraction less than 1 decreases a positive number, while dividing by one increases it.