LESSON MAKER PRO

Fraction Size Detective

Use the size of a fraction to predict the product.

GRADE 5 · 5.NR.3.5

5.NR.3.5 "Explain why multiplying a whole number by a fraction greater than one results in a product greater than the whole number, and why multiplying a whole number by a fraction less than one results in a product less than the whole number and..."

NAME _____ DATE _____

THE BIG IDEA

When you multiply a positive whole number by a fraction greater than 1, the product is greater than the whole number. A fraction less than 1 makes the product smaller, and a fraction equal to 1 keeps the product the same.

WORKED EXAMPLE

Find 18 × 7/6. Is the product greater than, less than, or equal to 18?

1. 7/6 is greater than 1.
2. 18 × 7/6 = (18 ÷ 6) × 7
3. 3 × 7 = 21

Answer: 21, which is greater than 18.

PRACTICE 6 problems

1 Find 9 × 2/3. Is the product greater than, less than, or equal to 9?

ANSWER _____

2 Find 11 × 5/4. Is the product greater than, less than, or equal to 11?

ANSWER _____

3 Find 15 × 8/8. Is the product greater than, less than, or equal to 15?

ANSWER _____

4 Find 20 × 3/2. Is the product greater than, less than, or equal to 20?

ANSWER _____

5 Find 14 × 4/7. Is the product greater than, less than, or equal to 14?

ANSWER _____

6 Find 16 × 1. Is the product greater than, less than, or equal to 16?

ANSWER _____

APPLY IT Show your work

1 An art club has 24 students. A display has space for 3/4 as many mini-posters as students. How many mini-posters fit on the display? Is this number greater than or less than 24? Explain.

WORK SPACE

ANSWER _____

2 A video game gives a player 15 stars. A special level multiplies the stars by 4/3. How many stars does the player have? Is this number greater than or less than 15? Explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Mina says, "Any multiplication makes a number larger." Use 25 × 1/5 to decide whether Mina is correct. Find the product and explain.

_____

_____

ANSWER KEY

Fraction Size Detective

GRADE 5 · 5.NR.3.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 9 × 2/3. Is the product greater than, less than, or equal to 9?	**6, less than 9 because 2/3 is less than 1.**
2	Find 11 × 5/4. Is the product greater than, less than, or equal to 11?	**13 3/4, greater than 11 because 5/4 is greater than 1.**
3	Find 15 × 8/8. Is the product greater than, less than, or equal to 15?	**15, equal to 15 because 8/8 equals 1.**
4	Find 20 × 3/2. Is the product greater than, less than, or equal to 20?	**30, greater than 20 because 3/2 is greater than 1.**
5	Find 14 × 4/7. Is the product greater than, less than, or equal to 14?	**8, less than 14 because 4/7 is less than 1.**
6	Find 16 × 1. Is the product greater than, less than, or equal to 16?	**16, equal to 16 because 1 equals 1.**

PART 2 · APPLY IT

1. **18 mini-posters. This is less than 24 because 3/4 is less than 1.** Multiply 24 × 3/4 = 18. Since 3/4 is less than 1, the product is less than 24.
2. **20 stars. This is greater than 15 because 4/3 is greater than 1.** Multiply 15 × 4/3 = 20. Since 4/3 is greater than 1, the product is greater than 15.

CHALLENGE

Mina is not correct. 25 × 1/5 = 5, which is less than 25 because 1/5 is less than 1.

Accept equivalent fraction forms, such as 55/4 for 13 3/4. Students should state that the fraction is greater than, less than, or equal to 1 when explaining the comparison.