LESSON MAKER PRO

Fraction Product Power

See how a fraction changes a whole number when you multiply.

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 _____

HOW THE FRACTION CHANGES THE PRODUCT

A fraction greater than 1 makes a whole number larger when you multiply. A fraction less than 1 makes it smaller, and a fraction equal to 1 keeps it the same. Compare the fraction to 1 before you multiply.

WORKED EXAMPLE

Find 18 x 5/3. Tell whether the product is greater than, less than, or equal to 18.

1. 5/3 is greater than 1.
2. Multiply: 18 x 5/3 = (18 / 3) x 5.
3. 6 x 5 = 30.
4. Because 5/3 is greater than 1, 30 is greater than 18.

Answer: 30; greater than 18

PRACTICE 6 problems

1 Find 16 x 3/4. Is the product greater than, less than, or equal to 16?

ANSWER _____

2 Find 9 x 7/6. Is the product greater than, less than, or equal to 9?

ANSWER _____

3 Find 25 x 1. Is the product greater than, less than, or equal to 25?

ANSWER _____

4 Without multiplying, decide: Is 11 x 2/5 greater than, less than, or equal to 11? Explain using the fraction.

ANSWER _____

5 Without multiplying, decide: Is 14 x 13/13 greater than, less than, or equal to 14? Explain using the fraction.

ANSWER _____

6 Find 8 x 9/8. Is the product greater than, less than, or equal to 8?

ANSWER _____

APPLY IT Show your work

1 A music club has 24 songs on a playlist. For a longer playlist, it makes the playlist 5/4 as long. How many songs are on the longer playlist? Explain why the new number is greater than 24.

WORK SPACE

ANSWER _____

2 Jordan earned 36 points in a video game round. In a practice round, Jordan earns 2/3 as many points. How many points does Jordan earn in the practice round? Explain why the new number is less than 36.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Mia says, "15 x 4/4 will be greater than 15 because 4 is greater than 1." Is Mia correct? Write the product and explain why.

WORK SPACE AND ANSWER

ANSWER KEY

Fraction Product Power

GRADE 5 · 5.NR.3.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 16 x 3/4. Is the product greater than, less than, or equal to 16?	**12; less than 16**
2	Find 9 x 7/6. Is the product greater than, less than, or equal to 9?	**10 1/2; greater than 9**
3	Find 25 x 1. Is the product greater than, less than, or equal to 25?	**25; equal to 25**
4	Without multiplying, decide: Is 11 x 2/5 greater than, less than, or equal to 11? Explain using the fraction.	**Less than 11; 2/5 is less than 1.**
5	Without multiplying, decide: Is 14 x 13/13 greater than, less than, or equal to 14? Explain using the fraction.	**Equal to 14; 13/13 equals 1.**
6	Find 8 x 9/8. Is the product greater than, less than, or equal to 8?	**9; greater than 8**

PART 2 · APPLY IT

1. **30 songs; 5/4 is greater than 1, so multiplying 24 by 5/4 makes a product greater than 24.** Compute 24 x 5/4 by dividing 24 by 4, then multiplying by 5. Since 5/4 is greater than 1, the result must be greater than 24.
2. **24 points; 2/3 is less than 1, so multiplying 36 by 2/3 makes a product less than 36.** Compute 36 x 2/3 by dividing 36 by 3, then multiplying by 2. Since 2/3 is less than 1, the product is less than 36.

CHALLENGE

Mia is not correct. 15 x 4/4 = 15 because 4/4 equals 1, so the product equals the whole number.

Accept equivalent fraction and mixed-number forms, such as 21/2 for 10 1/2. For explanations, accept statements that correctly compare the fraction to 1 and connect that comparison to the product.