LESSON MAKER PRO

Flip, Cancel, Solve

Use operation properties to work with rational numbers.

GRADE 7 · 7.NS.A.2c

CCSS.Math.Content.7.NS.A.2c "Apply properties of operations as strategies to multiply and divide rational numbers."

NAME _____ DATE _____

WORK SMARTER WITH FACTORS

When you multiply rational numbers, use the commutative and associative properties to reorder and regroup factors so common factors can be canceled before you multiply. To divide by a nonzero rational number, multiply by its reciprocal, then use the same strategies. Zero has no reciprocal, and division by zero is undefined.

WORKED EXAMPLE

(-17/23) x (46/51)

1. Regroup: (-17 x 46)/(23 x 51).
2. Cancel 46 and 23 to get (-17 x 2)/51.
3. Cancel 17 and 51 to get -2/3.

Answer: -2/3

PRACTICE 6 problems

1 (-4/9) x (27/8)

ANSWER _____

2 (11/14) x (-21/22)

ANSWER _____

3 (-13/15) ÷ (26/45)

ANSWER _____

4 (16/21) ÷ (-8/49)

ANSWER _____

5 Use the distributive property to find: (-5/11) x (7/8 + 3/4)

ANSWER _____

6 (-19/24) ÷ (57/40)

ANSWER _____

APPLY IT Show your work

1 A game server's available storage changes by -3/8 GB every 1/2 hour while an update runs. The update runs for 7/3 hours. What is the total change in available storage?

WORK SPACE

ANSWER _____

2 During 14/3 hours of listening offline, a phone's free storage changes by -7/9 GB. At a constant rate, what is the change in free storage each hour?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Find (-15/28) ÷ (25/42) x (-14/9). Explain how you use the reciprocal and cancellation to make the calculation easier.

_____

_____

ANSWER KEY

Flip, Cancel, Solve

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	(-4/9) x (27/8)	**-3/2**
2	(11/14) x (-21/22)	**-3/4**
3	(-13/15) ÷ (26/45)	**-3/2**
4	(16/21) ÷ (-8/49)	**-14/3**
5	Use the distributive property to find: (-5/11) x (7/8 + 3/4)	**-65/88**
6	(-19/24) ÷ (57/40)	**-5/9**

PART 2 · APPLY IT

1. **-7/4 GB** Find the number of half-hour intervals: (7/3) ÷ (1/2) = 14/3. Then multiply (-3/8) x (14/3) = -7/4 GB.
2. **-1/6 GB per hour** Divide the total change by the time: (-7/9) ÷ (14/3) = (-7/9) x (3/14) = -1/6 GB per hour.

CHALLENGE

7/5. Rewrite division as multiplication by 42/25. Cancel 15 with 25, 42 with 28, then 14 with the remaining 2 and the two remaining 3s with 9.

Accept equivalent fractions, mixed numbers, or terminating decimals when they represent the same value. For the challenge, accept any correct explanation that rewrites division using a reciprocal and uses valid factor cancellation.