

Rational Number Moves

Use multiplication to model signed changes and fractional amounts.

GRADE 7 • 7.NR.1.6

7.NR.1.6 "Make sense of multiplication of rational numbers using realistic applications."

NAME _____

DATE _____

MULTIPLY WITH MEANING

Multiply the numerators and denominators, then simplify the fraction. A product with one negative factor is negative, and a product with two negative factors is positive.

WORKED EXAMPLE

Find $(-7/8) * (12/35)$.

1. Start with $(-7/8) * (12/35)$.
2. Cancel 7 with 35 to get 1 and 5.
3. Cancel 12 with 8 to get 3 and 2.
4. Multiply: $-(1 * 3)/(2 * 5) = -3/10$.

Answer: -3/10

PRACTICE 6 problems

1 $(-4/9) * (-3/11)$

ANSWER _____

2 $(5/6) * (-18/25)$

ANSWER _____

3 $(-2 \frac{1}{4}) * (4/21)$

ANSWER _____

4 $0.6 * (-1.5)$

ANSWER _____

5 $(-13/14) * (-28/39)$

ANSWER _____

6 $(-3.2) * (-0.25)$

ANSWER _____

APPLY IT Show your work

- 1** During an online game, a power-down changes a character's speed by $-\frac{2}{5}$ of its 50 points per second. What is the change in speed?

WORK SPACE

ANSWER _____

- 2** During a 6-hour outdoor concert, the temperature changes by -1.25°C each hour. What is the total change in temperature?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

An esports character starts with 24 energy points. A trap removes $\frac{3}{4}$ of $\frac{2}{3}$ of the character's energy. Write a multiplication expression for the change, then find the change in energy.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	$(-4/9) * (-3/11)$	4/33
2	$(5/6) * (-18/25)$	-3/5
3	$(-2 \frac{1}{4}) * (4/21)$	-3/7
4	$0.6 * (-1.5)$	-0.9
5	$(-13/14) * (-28/39)$	2/3
6	$(-3.2) * (-0.25)$	0.8

PART 2 • APPLY IT

1. **-20 points per second** Multiply $(-2/5) * 50 = -20$. The negative sign means the character's speed decreases by 20 points per second.
2. **-7.5°C** Multiply $6 * (-1.25) = -7.5$. The temperature decreases by 7.5°C overall.

CHALLENGE

$(-3/4) * (2/3) * 24 = -12$ energy points

Accept equivalent fractions for fraction products. For decimal products and application answers, accept equivalent fractions when the value, sign, and units are correct.