LESSON MAKER PRO

Signed Number Moves

Calculate with signs, fractions, and powers.

GRADE 7 · 7.N.2

7.N.2 "Calculate with rational numbers, with and without positive integer exponents, to model and solve mathematical problems. Estimate solutions to multiplication and division of integers in order to assess the reasonableness of results..."

NAME _____ DATE _____

POWERS AND SIGNS

Evaluate a power by multiplying its base by itself. A negative base in parentheses has a positive result when its exponent is even and a negative result when its exponent is odd. When multiplying or dividing two numbers, matching signs give a positive result, and different signs give a negative result.

WORKED EXAMPLE

Evaluate $(-3/4)^2 \div (9/8)$.

1. Evaluate the power: $(-3/4)^2 = 9/16$.
2. Multiply by the reciprocal: $9/16 \times 8/9$.
3. Simplify: $9/16 \times 8/9 = 1/2$.

Answer: 1/2

PRACTICE 6 problems

1 Calculate $(-6) \times 7$.

ANSWER _____

2 Calculate $(-56) \div (-8)$.

ANSWER _____

3 Calculate $(-2/5) \times (15/4)$.

ANSWER _____

4 Calculate $(-1.2) \div 0.3$.

ANSWER _____

5 Evaluate $(-2/3)^3$.

ANSWER _____

6 Evaluate $(1/2)^2 \times (-12)$.

ANSWER _____

APPLY IT Show your work

1 In a game, you lose 2.5 points in each of 6 rounds, then earn 4 points. What is your total change in points?

WORK SPACE

ANSWER _____

2 A 96 MB video file is compressed three times. Each time, its size becomes 1/2 of its previous size. What is the file size after the third time?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Evaluate $(-5/6)^2 \div (-25/12) + 2/3$. Show your steps and explain why the result is positive.

WORK SPACE AND ANSWER

ANSWER KEY

Signed Number Moves

GRADE 7 · 7.N.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Calculate (-6) × 7.	**-42**
2	Calculate (-56) ÷ (-8).	**7**
3	Calculate (-2/5) × (15/4).	**-3/2**
4	Calculate (-1.2) ÷ 0.3.	**-4**
5	Evaluate $(-2/3)^3$.	**-8/27**
6	Evaluate $(1/2)^2 \times (-12)$.	**-3**

PART 2 · APPLY IT

1. **-11 points** Calculate 6 × (-2.5) + 4 = -15 + 4 = -11.
2. **12 MB** Calculate 96 × $(1/2)^3$ = 96 × 1/8 = 12.

CHALLENGE

$(-5/6)^2$ = 25/36. Then 25/36 ÷ (-25/12) = -1/3, and -1/3 + 2/3 = 1/3. The result is positive because 2/3 is greater than 1/3.

Accept equivalent fractions and decimals for exact answers, such as -1.5 for -3/2. For the challenge, look for the power evaluated before division and addition.