

Rational Number Moves

Calculate, convert, and check multi-step results.

GRADE 7 • NY-7.EE.3

NY-7.EE.3 "Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically..."

NAME _____

DATE _____

PLAN, CALCULATE, CHECK

Use parentheses first, then multiply or divide before adding or subtracting. Convert fractions and decimals to forms that work well together, and estimate to decide whether your final answer makes sense.

WORKED EXAMPLE

Calculate: $-3.3 + 4(0.55) - 4/5$

1. Convert $4/5$ to 0.8 .
2. Multiply: $4(0.55) = 2.2$.
3. Add and subtract: $-3.3 + 2.2 - 0.8 = -1.9$.
4. Check: $-3 + 2 - 1$ is about -2 , so -1.9 is reasonable.

Answer: -1.9

PRACTICE 6 problems

1 Calculate: $-7.4 + 3.9 - (-2.6)$

ANSWER _____

2 Calculate: $5/6 - 1/4 + (-2/3)$

ANSWER _____

3 Calculate: $-2.5(3) + 7.2$

ANSWER _____

4 Calculate: $3(-1.2 + 0.45)$

ANSWER _____

5 Calculate and write the answer as a decimal: $-11/8 + 0.6$

ANSWER _____

6 Estimate first, then calculate exactly: $(-6.8 + 2.1) / 0.5$

ANSWER _____

APPLY IT Show your work

- 1** In a gaming tournament, Jalen starts with 12.5 points. He loses 2.75 points in each of 3 rounds, then earns a bonus of $1\frac{1}{5}$ points. What is his final score?

WORK SPACE

ANSWER _____

- 2** Rina's school-store account has a balance of -\$5.60. She adds an amount equal to $\frac{2}{5}$ of \$15, then buys 2 sticker packs that cost \$1.35 each. What is her new account balance?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A drone begins 1.6 m below its starting-height marker. It rises $2\frac{2}{3}$ m, descends $\frac{5}{8}$ of 3.2 m, and then rises 0.85 m. What is its final elevation compared with the marker? Explain your reasoning in one or two sentences.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Calculate: $-7.4 + 3.9 - (-2.6)$	-0.9
2	Calculate: $5/6 - 1/4 + (-2/3)$	-1/12
3	Calculate: $-2.5(3) + 7.2$	-0.3
4	Calculate: $3(-1.2 + 0.45)$	-2.25
5	Calculate and write the answer as a decimal: $-11/8 + 0.6$	-0.775
6	Estimate first, then calculate exactly: $(-6.8 + 2.1) / 0.5$	Estimate: about -10; exact answer: -9.4

PART 2 • APPLY IT

- 5.45 points** Multiply 2.75 by 3 to find the total loss, then subtract that loss and add the bonus: $12.5 - 8.25 + 1.2 = 5.45$.
- \$2.30** Find the deposit, $2/5$ of 15 is 6, and the cost of the packs, $2(1.35)$ is 2.70. Then calculate $-5.60 + 6.00 - 2.70 = -2.30$.

CHALLENGE

The drone is $1/12$ m below the marker. Convert 3.2 to $16/5$, so $5/8$ of 3.2 is 2, then calculate $-1.6 + 2 \frac{2}{3} - 2 + 0.85 = -1/12$.

Accept equivalent fraction and decimal forms when they are exact. For the challenge, accept $-1/12$ m, about -0.0833 m, or a statement that the drone is $1/12$ m below the marker.