

Grade 7 • Unit 5 Worksheet

Rational Number Arithmetic

Name: _____

Date: _____

Part A • Warm-up: Signed Number Sense

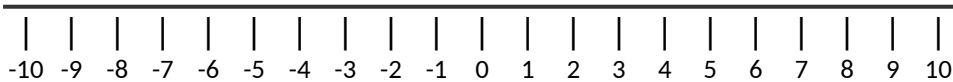
Mental math.

$-7 + 4 =$ _____	$-5 + (-8) =$ _____	$6 - 9 =$ _____	$-3 - 5 =$ _____
$-2 \times 6 =$ _____	$(-4)(-7) =$ _____	$-15 \div 3 =$ _____	$-24 \div (-6) =$ _____

Part B • Adding and Subtracting on a Number Line

1. Use the number line to compute. Then write the answer.

- a. $-6 + 9 =$ _____
- b. $-3 + (-4) =$ _____
- c. $5 - 8 =$ _____
- d. $-2 - 5 =$ _____



2. Subtraction as adding the opposite. Rewrite each subtraction as addition, then compute.

- a. $-7 - 3 = -7 +$ _____ $=$ _____
- b. $4 - (-6) = 4 +$ _____ $=$ _____
- c. $-9 - (-2) = -9 +$ _____ $=$ _____

Part C • Multiplication of Signed Numbers

3. Compute. Then state the sign rule.

- a. $(-4) \times 5 =$ _____
- b. $(-6) \times (-3) =$ _____
- c. $(8) \times (-2) =$ _____
- d. Complete the rules:
 - positive $\times$ positive = _____ negative $\times$ negative = _____
 - positive $\times$ negative = _____ negative $\times$ positive = _____

4. A scuba diver descends at 3 meters per minute (a velocity of -3 m/min). The diver starts at the surface (height 0).

a. Where will the diver be after 4 minutes?

b. Where was the diver 6 minutes BEFORE (i.e., $t = -6$ minutes)?

c. Write an equation: position = _____ $\times$ time. What is the meaning of the constant?

Part D • Real Contexts with Signed Numbers

5. Bank account problem. Lin starts the month with \$40.

a. She deposits \$30 (+30) then withdraws \$50 (-50). New balance: \$ _____

b. From there, she writes 3 checks of \$25 each. Her balance is now \$ _____

c. What does a negative balance mean in real life?

6. Temperature changes. The temperature was -8°F at 6 AM and rose by 17°F by noon, then dropped by 11°F by sunset.

Sketch this on a number line (label the values).

Temperature at noon: _____ $^{\circ}\text{F}$

Temperature at sunset: _____ $^{\circ}\text{F}$

Part E • Solving Equations with Negatives

7. Solve each equation. Show your work.

a. $x + 9 = 4$. $x =$ _____

b. $-3y = 18$. $y =$ _____

c. $5 = m - (-7)$. $m =$ _____

d. $z/(-4) = 10$. $z =$ _____

Part F • Error Analysis & Reasoning

8. Diego computed: $-5 - (-3) = -5 - 3 = -8$. Is Diego correct?

Is the answer right? ☐ Yes ☐ No

What was Diego's mistake? Explain.

Correct answer = _____

9. Andre says: "A negative times a negative is positive because two wrongs make a right."
Without using slogans, give a real-world or pattern-based argument for why $(-4)(-3) = 12$.

10. Write a story problem that could be modeled by: $-15 + 8 = -7$.
