



Rational numbers on the number line

GRADE 6 MATH

Answer keys for the exit ticket, practice worksheet, and homework, plus notes for the lesson slides. Each answer shows the steps and the most likely wrong answer (“If wrong”), so you can tell what a mistake means, not just that it is one. Questions go from **fluency** to **application** to **reasoning**.

Exit Ticket — answer key

Use: End of the number-line lesson. 5–8 min, independent.

Timing: 5–8 min · independent. Item 4 is the core misconception and directly sets up the ordering skill.

1. Farther left: -3 or -1 ? **FLUENCY**

Answer: -3

1. Numbers increase left to right.
2. -3 is less than -1 , so -3 sits farther left.

If wrong: Chose -1 by comparing the digits 3 and 1 instead of the positions.

2. Where is $-\frac{1}{2}$? **APPLICATION**

Answer: **Halfway between -1 and 0**

1. $\frac{1}{2}$ sits halfway between 0 and 1.
2. $-\frac{1}{2}$ is its mirror image: halfway between -1 and 0.

If wrong: Placed it between 0 and 1 (ignored the sign) or at -1 exactly.

3. Quadrant of $(-4, 3)$? **APPLICATION**

Answer: **Quadrant II**

1. $x = -4$ is negative $\rightarrow$ left of the y-axis.
2. $y = 3$ is positive $\rightarrow$ above the x-axis.
3. Left and up is Quadrant II.

If wrong: Said Quadrant IV — reversed the coordinates and plotted $(3, -4)$ instead.

4. Sofia: -5 right of -2 ? REASONING

Answer: **No — -5 is to the LEFT of -2**

1. On the negative side, a bigger digit means FARTHER FROM ZERO, which is farther left.
2. -5 is 5 units left of 0; -2 is only 2 units left of 0.
3. So $-5 < -2$ and sits farther left. Order: $-5, -2, 0$.

If wrong: Applied counting order to the negatives. The digit tells you distance from zero; on the left side, more distance means a SMALLER number.

Quick answers for fast checking:

#	Level	Answer
1	fluency	-3
2	application	Between -1 and 0
3	application	Quadrant II
4	reasoning	-5 is left of -2

Practice Worksheet — answer key

Use: During the lesson after the mini-lesson/deck. Items 5–6 both test (x, y) order; item 9 catches reading a fraction as its numerator.

Timing: 15–25 min · pairs or independent · circulate on 7–9. Items 1–3 fluency, 4–6 application, 7–9 reasoning.

1. Farther left: -6 or -2 ? FLUENCY

Answer: **-6**

1. -6 is 6 units left of 0; -2 is only 2 units left.

If wrong: Chose -2 by comparing digits.

2. $-\frac{1}{2}$ lies between? FLUENCY

Answer: **-1 and 0**

1. Half a unit left of zero.

If wrong: Said 0 and 1 — ignored the sign.

3. 2.5 lies between? **FLUENCY**

Answer: **2 and 3**

1. Halfway between 2 and 3.

If wrong: Said 1 and 2, or rounded to 3.

4. $-7/2$ as a decimal, between? **APPLICATION**

Answer: **-3.5 ; between -4 and -3**

1. $7 \div 2 = 3.5$, so $-7/2 = -3.5$.
2. -3.5 sits halfway between -4 and -3 .

If wrong: Said between -3 and -2 — on the negative side, -3.5 is FARTHER from zero than -3 , so it sits to its left.

5. Quadrant of $(3, -2)$? **APPLICATION**

Answer: **Quadrant IV**

1. $x = 3$ positive $\rightarrow$ right of the y-axis.
2. $y = -2$ negative $\rightarrow$ below the x-axis.
3. Right and down is Quadrant IV.

If wrong: Said Quadrant II — reversed the coordinates.

6. Quadrant of $(-5, -1)$? **APPLICATION**

Answer: **Quadrant III**

1. Both coordinates negative $\rightarrow$ left and down.
2. That is Quadrant III.

If wrong: Said Quadrant II — only checked the first sign.

7. Order $-1, -0.75, 0, -\frac{1}{2}$? **REASONING**

Answer: **$-1, -0.75, -\frac{1}{2}, 0$**

1. Convert to the same form: $-1, -0.75, -0.5, 0$.
2. Farther from zero on the left = smaller.
3. Left to right: $-1, -0.75, -0.5 (-\frac{1}{2}), 0$.

If wrong: Put $-\frac{1}{2}$ before -0.75 by reading 75 as bigger than 5, or mixed forms without converting.

8. (4, 3) reflected across the x-axis? REASONING

Answer: **(4, -3) — the y-coordinate flips sign**

1. Reflecting across the x-axis flips the point above/below that axis.
2. The across-value ($x = 4$) does not change; the up/down value flips: $3 \rightarrow -3$.
3. New point: $(4, -3)$.

If wrong: Flipped the x instead, giving $(-4, 3)$ — that is a reflection across the Y-axis.

9. Ben plots $-9/4$ at -9 ? REASONING

Answer: **$-9/4 = -2.25$, between -3 and -2**

1. $-9/4$ means $-9 \div 4 = -2.25$.
2. He read only the numerator and ignored the division by 4.
3. -2.25 sits a quarter of the way from -2 toward -3 .

If wrong: Read a fraction as its numerator. A fraction is a division; convert before locating it.

Quick answers for fast checking:

#	Level	Answer
1	fluency	-6
2	fluency	-1 and 0
3	fluency	2 and 3
4	application	-3.5; -4 and -3
5	application	Quadrant IV
6	application	Quadrant III
7	reasoning	-1, -0.75, $-\frac{1}{2}$, 0
8	reasoning	(4, -3)
9	reasoning	-2.25

Homework — answer key

Use: Parallels the practice sheet one-to-one.

Timing: ~15 min at home · independent · review item 7 (which coordinate flips) as the next-day warm-up.

1. Farther left: -8 or -5 ? FLUENCY

Answer: -8

- -8 is 8 units left of 0.

If wrong: Chose -5 by comparing digits.

2. $-\frac{3}{4}$ lies between? FLUENCY

Answer: -1 and 0

- -0.75 is three quarters of the way from 0 toward -1 .

If wrong: Said 0 and 1 — ignored the sign.

3. 1.5 lies between? FLUENCY

Answer: 1 and 2

- Halfway between 1 and 2.

If wrong: Rounded to 2.

4. $-\frac{5}{2}$ as a decimal, between? APPLICATION

Answer: -2.5 ; between -3 and -2

- $5 \div 2 = 2.5$, so $-\frac{5}{2} = -2.5$.
- It sits halfway between -3 and -2 .

If wrong: Said between -2 and -1 — moved the wrong direction on the negative side.

5. Quadrant of $(-2, 4)$? APPLICATION

Answer: **Quadrant II**

- x negative $\rightarrow$ left; y positive $\rightarrow$ up. Quadrant II.

If wrong: Said Quadrant IV — reversed the coordinates.

6. Quadrant of $(6, -3)$? APPLICATION

Answer: **Quadrant IV**

- x positive $\rightarrow$ right; y negative $\rightarrow$ down. Quadrant IV.

If wrong: Said Quadrant II — reversed the coordinates.

7. $(-3, 5)$ reflected across the y-axis? REASONING

Answer: **$(3, 5)$ — the x-coordinate flips sign**

1. Reflecting across the y-axis flips left/right.
2. The up/down value ($y = 5$) stays; the across value flips: $-3 \rightarrow 3$.
3. New point: $(3, 5)$.

If wrong: Flipped the y instead, giving $(-3, -5)$ — that is a reflection across the X-axis.

8. Opposite of $7/2$, and positions? REASONING

Answer: **$-7/2$ (-3.5); each is 3.5 units from 0, on opposite sides**

1. $7/2 = 3.5$, so its opposite is -3.5 .
2. 3.5 sits 3.5 units right of 0; -3.5 sits 3.5 units left.
3. They are mirror images across zero.

If wrong: Answered $2/7$ — flipped the fraction instead of the sign. The opposite changes direction, not the value.

Quick answers for fast checking:

#	Level	Answer
1	fluency	-8
2	fluency	-1 and 0
3	fluency	1 and 2
4	application	-2.5; -3 and -2
5	application	Quadrant II
6	application	Quadrant IV
7	reasoning	$(3, 5)$
8	reasoning	$-7/2$

Lesson slides — teaching notes & timing

Mini-lesson deck: ~12–15 min, then launch into the practice sheet. Slide numbers match the deck.

Slide	~Time	Note
1/8	0:00	Frame the skill: every rational number has one location; negatives and fractions included.
2/8	1:00	Hook — do NOT resolve. Split the room on left vs right. The wrong answer comes from counting instinct.
3/8	3:00	Name the rule and why it does not stop at 0. Resolve the hook here.

4/8	5:00	WE1 — read the full order aloud, negatives through positives, so the mirror image is audible.
5/8	7:00	WE2 — fractions between whole numbers. The $-9/4$ -at- -9 error is common; show the conversion explicitly.
6/8	9:00	CFU — all-student response. Answer Quadrant II. Watch for IV (reversed coordinates).
7/8	11:00	(x, y) order. Plot a reversed pair deliberately so students see it lands in a different quadrant.
8/8	13:00	Launch the in-class practice sheet.