

Zero Line Detectives

Order integers and uncover opposites.

GRADE 6 • 6.NR.3.2

6.NR.3.2 "Order and plot integers on a number line and use distance from zero to discover the connection between integers and their opposites."

NAME _____

DATE _____

DISTANCE TELLS THE STORY

On a number line, numbers farther left are smaller, and numbers farther right are larger. An integer and its opposite are the same distance from zero, but they are on different sides of zero.

WORKED EXAMPLE

Plot -14 and +11 on a number line.
Which integer is farther from zero?

1. Place -14 to the left of zero and +11 to the right of zero.
2. Count from zero: -14 is 14 units away.
3. Count from zero: +11 is 11 units away.
4. Compare 14 units and 11 units.

Answer: -14 is farther from zero.

PRACTICE 6 problems

- 1** Order these integers from least to greatest:
+4, -9, -2, +8, -6.

ANSWER _____

- 2** Plot A at -3, B at +6, and C at -8 on a number line. List the point labels from left to right.

ANSWER _____

- 3** What is the opposite of -15? How far is each number from zero?

ANSWER _____

- 4** The integer +9 is plotted on a number line. What integer is its opposite, and where is it located compared with zero?

ANSWER _____

- 5** Order these integers from least to greatest:
+10, -13, -4, +3, -1.

ANSWER _____

- 6** Which integer is farther from zero, -16 or +2? Tell how many units away it is.

ANSWER _____

APPLY IT Show your work

- 1** In a mobile game, Jada's score position is -17 points compared with zero. Omar's score position is +17 points compared with zero. Are their score positions opposites? How far is each position from zero?

WORK SPACE

ANSWER _____

- 2** During a skateboarding video game, Leo's trick changes are +13 points, -6 points, and -10 points compared with zero. Plot the changes on a number line. List them from left to right, then name the change closest to zero.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Point x is 20 units from zero and is to the left of zero. Point y is the opposite of x . What are x and y ? Explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Order these integers from least to greatest: +4, -9, -2, +8, -6.	-9, -6, -2, +4, +8
2	Plot A at -3, B at +6, and C at -8 on a number line. List the point labels from left to right.	C, A, B
3	What is the opposite of -15? How far is each number from zero?	+15; both numbers are 15 units from zero.
4	The integer +9 is plotted on a number line. What integer is its opposite, and where is it located compared with zero?	-9; it is 9 units to the left of zero.
5	Order these integers from least to greatest: +10, -13, -4, +3, -1.	-13, -4, -1, +3, +10
6	Which integer is farther from zero, -16 or +2? Tell how many units away it is.	-16; it is 16 units from zero.

PART 2 • APPLY IT

- Yes. Their positions are opposites, and each is 17 units from zero.** The numbers have the same distance from zero, 17 units, and they are on opposite sides of zero.
- 10, -6, +13; -6 is closest to zero.** Numbers farther left are smaller, so the order is -10, -6, +13. The distances from zero are 10, 6, and 13.

CHALLENGE

$x = -20$ and $y = +20$. Since x is left of zero and 20 units away, x is -20. Its opposite is +20, which is the same distance from zero on the other side.

Accept answers with or without a plus sign on positive integers. For plotted-point questions, accept correctly ordered labels or integers and equivalent wording about distance from zero.