LESSON MAKER PRO

Across Zero

Read number lines and find opposites in everyday situations.

GRADE 6 · 6.NS.C.10

6.NS.C.10 "Locate integers and other rational numbers on a horizontal or vertical line diagram. a. Define opposites as numbers located on opposite sides of 0 and the same distance from 0 on a number line. b..."

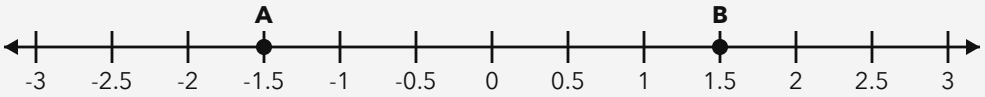
NAME _____ DATE _____

OPPOSITE SIDES

On a number line, opposites are the same distance from 0 but on different sides. Numbers to the right of 0 are positive, and numbers to the left are negative. In a real situation, 0 is a reference point, such as a starting height or no change in a score.

WORKED EXAMPLE

Are points A and B opposites? Use the number line to explain.

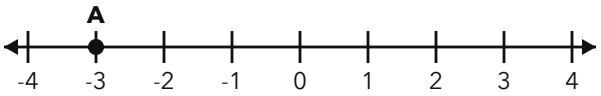


1. Read A at -1.5 and B at 1.5.
2. Each point is 1.5 units from 0.
3. The points are on different sides of 0.

Answer: Yes. A and B are opposites.

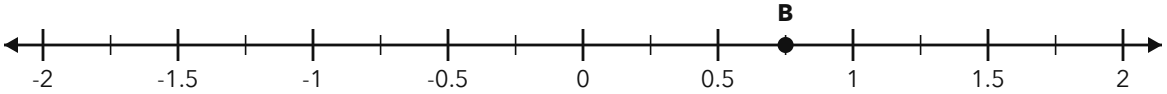
PRACTICE 6 problems

1 What number is at A? What is its opposite?



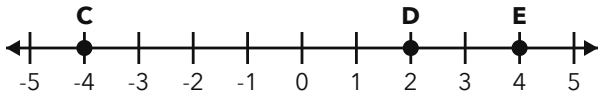
ANSWER _____

2 What number is at B? Is it positive or negative?



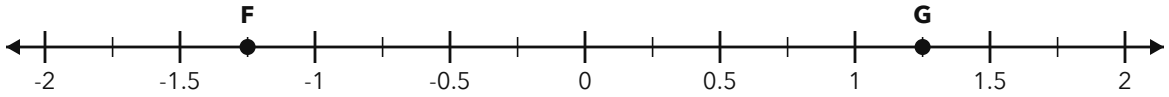
ANSWER _____

3 Which two labeled points are opposites?



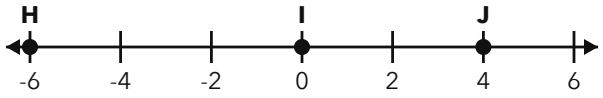
ANSWER _____

4 Which point is opposite F? How far is each point from 0?



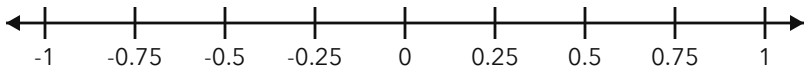
ANSWER _____

5 This line shows temperatures in °C. Which point marks the freezing point of water? What does 0°C mean?



ANSWER _____

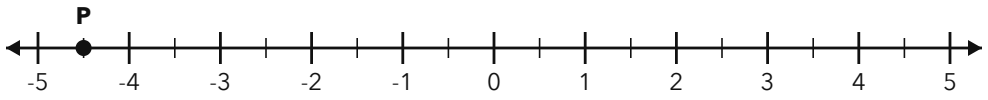
6 A diver is 3/4 meter below the water's surface. Mark the diver's position and its opposite on the number line. Write both numbers.



ANSWER _____

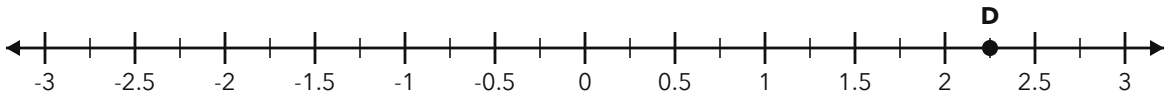
APPLY IT Show your work

1 In a video game, point P shows the change in Sam's score after a penalty. What score change would undo the penalty? What does 0 mean for a score change?



ANSWER _____

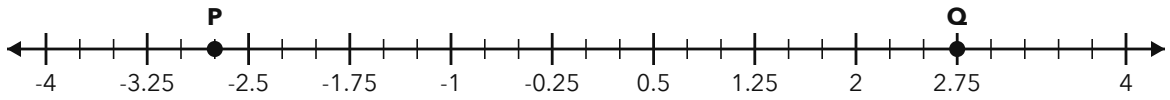
2 At a pool, point D shows a diving board's height above the water. A swimmer is the same distance below the water. What is the swimmer's height relative to the water? What does 0 represent?



ANSWER _____

CHALLENGE One step up

P and Q are shown. Point R is 1/2 unit from Q and closer to 0 than Q. What number is at R? Explain how you know.



WORK SPACE AND ANSWER

Across Zero

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What number is at A? What is its opposite?	**A is -3; its opposite is 3.**
2	What number is at B? Is it positive or negative?	**B is 3/4; it is positive.**
3	Which two labeled points are opposites?	**C and E.**
4	Which point is opposite F? How far is each point from 0?	**G; each point is 1 1/4 units from 0.**
5	This line shows temperatures in °C. Which point marks the freezing point of water? What does 0°C mean?	**I; 0°C is the freezing point of water.**
6	A diver is 3/4 meter below the water's surface. Mark the diver's position and its opposite on the number line. Write both numbers.	**Diver: -3/4 meter; opposite: 3/4 meter.**

PART 2 · APPLY IT

1. **A change of +4.5 points would undo the penalty. A change of 0 means the score stays the same.** P is at -4.5, so its opposite is +4.5. The two changes add to 0.
2. **The swimmer's height is -9/4 meters. The water's surface is at 0 meters.** D is at 9/4 meters, so the same distance below 0 is -9/4 meters.

CHALLENGE

R is at 2.25. Q is at 2.75, and moving 1/2 unit toward 0 gives 2.25.

Accept equivalent fractions and decimals, such as 1.25 for 1 1/4 and -2.25 for -9/4. In problem 6, the two marks must be equally far from 0 on opposite sides.