LESSON MAKER PRO

Where Is Zero?

Track changes above and below a starting point.

GRADE 6 · 6.NS.C.10.b

6.NS.C.10.b "Use rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation."

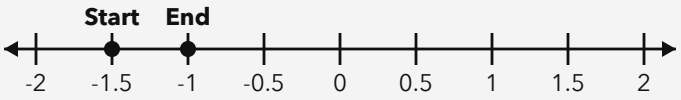
NAME _____ DATE _____

SIGNED CHANGES

Use positive and negative numbers to show positions on opposite sides of a reference point. Add each change to find the new position. The meaning of 0 depends on what the reference point represents.

WORKED EXAMPLE

A bank balance is -$1.50. You deposit $0.50. Find the new balance and explain what $0 means.



1. Start at -1.50.
2. Add the deposit: -1.50 + 0.50 = -1.00.

Answer: The balance is -$1.00, so you owe $1. A $0 balance means you have no money in the account and owe nothing.

PRACTICE 4 problems

1 A diver is 2.5 m below the surface and rises 0.75 m. Give the diver's signed position and explain what 0 means.

ANSWER _____

2 A hiker is 4.2 km east of camp and walks 1.3 km west. Use positive for east. Give the signed position and explain what 0 means.

ANSWER _____

3 The air is 6.8°C, then cools by 9.3°C. Find the new temperature and explain what 0°C means.

ANSWER _____

4 A player is 7/4 points below a game target and earns 15/4 points. Give the signed difference from the target and explain what 0 means.

ANSWER _____

APPLY IT Show your work

1 A club is $8.75 short of its fundraiser goal. It collects $12.50, then spends $2.25 on supplies. How far above or below its goal is it? What does 0 mean?

WORK SPACE

ANSWER _____

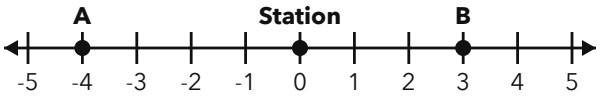
2 An esports team is 2.4 points below a target. It gains 3.7 points, then loses 0.6 point. What is its signed difference from the target? What does 0 mean?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A robot moves from A to B, then 2.5 units left. Find its final position and total distance traveled. What does 0 mean if it marks a charging station?



WORK SPACE AND ANSWER

ANSWER KEY

Where Is Zero?

GRADE 6 · 6.NS.C.10.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A diver is 2.5 m below the surface and rises 0.75 m. Give the diver's signed position and explain what 0 means.	**-1.75 m; 0 means the diver is at the surface.**
2	A hiker is 4.2 km east of camp and walks 1.3 km west. Use positive for east. Give the signed position and explain what 0 means.	**+2.9 km; 0 means the hiker is at camp.**
3	The air is 6.8°C, then cools by 9.3°C. Find the new temperature and explain what 0°C means.	**-2.5°C; 0°C is the freezing point of water under usual conditions.**
4	A player is 7/4 points below a game target and earns 15/4 points. Give the signed difference from the target and explain what 0 means.	**+2 points; 0 means the player has exactly reached the target.**

PART 2 · APPLY IT

1. **$1.50 above the goal; 0 means the club has exactly enough money to meet the goal.** Calculate -8.75 + 12.50 - 2.25 = 1.50.
2. **+0.7 point; 0 means the team is exactly at the target.** Calculate -2.4 + 3.7 - 0.6 = 0.7.

CHALLENGE

Final position: +0.5 units. Total distance: 9.5 units. At 0, the robot is at the charging station.

Accept equivalent fractions or decimals and equivalent descriptions of 0. In the challenge, distinguish the robot's final position from its total distance traveled.