LESSON MAKER PRO

Zero Distance

Find and use distance from zero on a number line.

GRADE 7 · 7.N.1.3

7.N.1.3 "Explain the relationship between the absolute value of a rational number and the distance of that number from zero on a number line. Use the symbol for absolute value. Apply the concept of absolute value to model and solve problems."

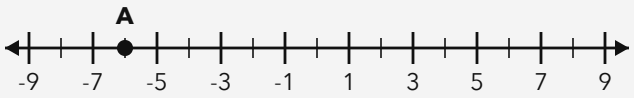
NAME _____ DATE _____

DISTANCE AND ABSOLUTE VALUE

The absolute value of a number is its distance from 0 on a number line. Write absolute value with bars, like |n|. A distance is never negative.

WORKED EXAMPLE

What is |A| on the number line?

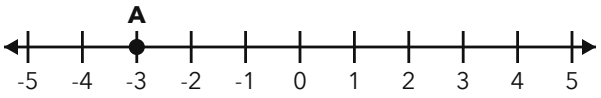


1. Find A at -6.
2. Count 6 spaces from A to 0.
3. |-6| = 6.

Answer: 6

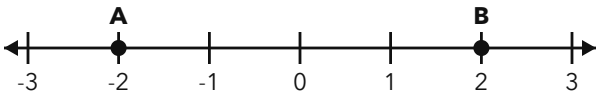
PRACTICE 6 problems

1 What is |A| on the number line?



ANSWER _____

2 Find |A| and |B| on the number line. Why are they equal?



ANSWER _____

_____

3 Find |-3/4|.

ANSWER _____

4 Find |1.25|.

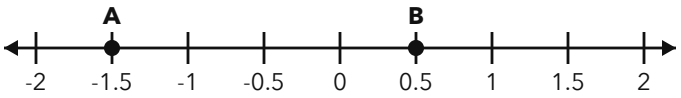
ANSWER _____

5 Find both values of x if |x| = 2.5.

ANSWER _____

_____

6 Which point is farther from 0, A or B? How much farther?



ANSWER _____

_____

APPLY IT Show your work

1 Maya has a score of -4.5 points in a game. How many points must she earn to reach 0? Write an absolute value equation to show your answer.

WORK SPACE

ANSWER _____

2 In one round of a game, Leo's score changes by -2.25 points. In the next round, it changes by +1.75 points. Which round has the larger change in size, and by how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game score starts at -3.5. You earn x points. The new score is still negative and is 2.5 points from 0. Find x and explain using absolute value.

WORK SPACE AND ANSWER

ANSWER KEY

Zero Distance

GRADE 7 · 7.N.1.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What is |A| on the number line?	**|A| = 3**
2	Find |A| and |B| on the number line. Why are they equal?	**|A| = 2 and |B| = 2. Both points are 2 units from 0.**
3	Find |-3/4|.	**3/4**
4	Find |1.25|.	**1.25**
5	Find both values of x if |x| = 2.5.	**x = -2.5 or x = 2.5**
6	Which point is farther from 0, A or B? How much farther?	**A is farther from 0 by 1 unit.**

PART 2 · APPLY IT

1. **She must earn 4.5 points. |-4.5| = 4.5.** Her score is 4.5 points from 0, so she must earn 4.5 points.
2. **The first round, by 0.5 point.** |-2.25| = 2.25 and |1.75| = 1.75. The difference is 2.25 - 1.75 = 0.5 point.

CHALLENGE

The new score is -2.5 because |-2.5| = 2.5 and the score is negative. Since -3.5 + 1 = -2.5, x = 1.

For number-line items, accept the stated distance without absolute value notation when the notation is not requested. In the challenge, the explanation must use the negative new score, not the positive score that is also 2.5 points from 0.