LESSON MAKER PRO

Distance Without Direction

Find how far apart rational numbers are.

GRADE 7 · 7A.NS.A.8.d

7A.NS.A.8.d "Use a number line to demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts."

NAME _____ DATE _____

THE BIG IDEA

On a number line, distance is the number of units between two points, no matter which direction you move. Subtract the values in either order, then take the absolute value because distance cannot be negative.

WORKED EXAMPLE

Find the distance between A and B on the number line.

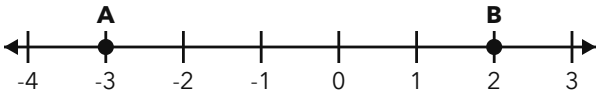


1. Read the points: A = -1.5 and B = 2.5.
2. Subtract: 2.5 - (-1.5) = 4.
3. Take the absolute value: |4| = 4. This matches eight spaces of 0.5 unit each.

Answer: 4 units

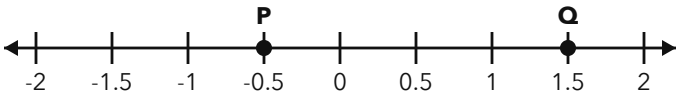
PRACTICE 6 problems

1 Find the distance between A and B.



ANSWER _____

2 Find the distance between P and Q.



ANSWER _____

3 Find the distance between -3/4 and 1/4. Write an absolute-value expression and its value.

ANSWER _____

_____

4 Find the distance between -2.25 and 0.75.

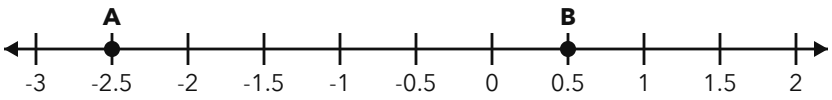
ANSWER _____

5 Which pair is farther apart: -2/3 and 4/3, or 1/2 and 2? Name the pair and give its distance.

ANSWER _____

_____

6 What are the values of A and B? Then find the distance between them.



ANSWER _____

_____

APPLY IT Show your work

1 In a video game, your point total is -7 after a penalty. Later, your total is 9. How far apart are the two totals on a number line?

WORK SPACE

ANSWER _____

2 At a skate park, the bottom of a bowl is 1.25 m below ground level. A platform is 0.75 m above ground level. What is the vertical distance between them?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Maya subtracts -1 1/4 minus 2 3/4 and gets -4. She says the distance is -4 units. Explain her mistake and give the correct distance using absolute value.

WORK SPACE AND ANSWER

ANSWER KEY

Distance Without Direction

GRADE 7 · 7A.NS.A.8.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the distance between A and B.	**5 units**
2	Find the distance between P and Q.	**2 units**
3	Find the distance between -3/4 and 1/4. Write an absolute-value expression and its value.	**|1/4 - (-3/4)| = 1 unit**
4	Find the distance between -2.25 and 0.75.	**3 units**
5	Which pair is farther apart: -2/3 and 4/3, or 1/2 and 2? Name the pair and give its distance.	**-2/3 and 4/3; 2 units**
6	What are the values of A and B? Then find the distance between them.	**A = -2.5, B = 0.5; distance = 3 units**

PART 2 · APPLY IT

1. **16 points** Find the absolute value of the difference: |9 - (-7)| = 16.
2. **2 m** Use -1.25 m for the bowl and 0.75 m for the platform. Their distance is |0.75 - (-1.25)| = 2 m.

CHALLENGE

Maya found a negative difference, but distance cannot be negative. The distance is |-1 1/4 - 2 3/4| = |-4| = 4 units.

Accept subtraction in either order inside the absolute-value expression. Accept equivalent fractions, decimals, and mixed numbers.