

Number Line Moves

Subtract rational numbers and measure the space between them.

GRADE 7 • NY-7.NS.1.c

NY-7.NS.1.c "Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference..."

NAME _____

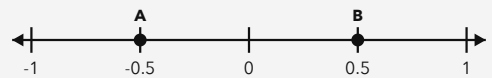
DATE _____

SUBTRACT AND MEASURE

To subtract q , add its opposite: $p - q = p + (-q)$. The distance between p and q is $|p - q|$. Distance is always nonnegative, and it is zero when the numbers are the same.

WORKED EXAMPLE

Use the number line to find the distance from A to B.

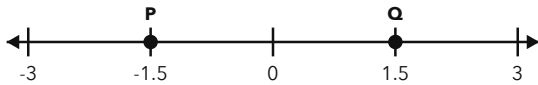


1. Distance = $|1/2 - (-1/2)|$.
2. Change subtraction to addition: $|1/2 + 1/2|$.
3. $|1| = 1$.

Answer: 1 unit

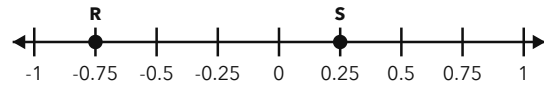
PRACTICE 6 problems

- 1** Use the number line to find the distance from P to Q.



ANSWER _____

- 2** Use the number line to find the distance from R to S.



ANSWER _____

- 3** Find the value of $(-7/8) - 3/8$.

ANSWER _____

- 4** Find the value of $5/6 - (-1/3)$.

ANSWER _____

- 5** Find the distance between $-2/5$ and $9/10$ on a number line.

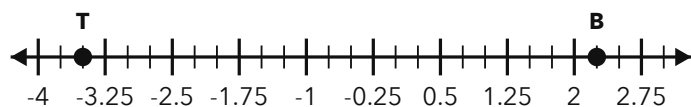
ANSWER _____

- 6** Rewrite $-1 \frac{1}{4} - (-2 \frac{1}{2})$ as addition, then find its value.

ANSWER _____

APPLY IT Show your work

- 1** A diving video game tracks depth in meters relative to sea level. Use the vertical tracker to find how far apart the treasure T and the air bubble B are.



ANSWER _____

- 2** During a winter camping trip, the temperature was $-1\frac{3}{4}$ degrees C in the morning and $2\frac{1}{2}$ degrees C in the afternoon. How many degrees did the temperature change?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A point x is $\frac{7}{10}$ unit away from $-\frac{3}{5}$ on a number line. Find both possible values of x . Explain how you know there are two values.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Use the number line to find the distance from P to Q.	3 units
2	Use the number line to find the distance from R to S.	1 unit
3	Find the value of $(-7/8) - 3/8$.	-5/4
4	Find the value of $5/6 - (-1/3)$.	7/6
5	Find the distance between $-2/5$ and $9/10$ on a number line.	13/10 units
6	Rewrite $-1\frac{1}{4} - (-2\frac{1}{2})$ as addition, then find its value.	$-1\frac{1}{4} + 2\frac{1}{2} = 5/4$

PART 2 • APPLY IT

- 5 $3/4$ meters** Find the absolute value of the difference: $|2.25 - (-3.5)| = 5.75$. The locations are $5\frac{3}{4}$ meters apart.
- 4 $1/4$ degrees C** Find the distance between the temperatures: $|2\frac{1}{2} - (-1\frac{3}{4})|$. The result is $4\frac{1}{4}$ degrees C.

CHALLENGE

$x = 1/10$ or $x = -13/10$. A point can be $7/10$ unit to the right or $7/10$ unit to the left of $-3/5$.

Accept equivalent fractions, decimals, or mixed numbers when they have the same value. For distance answers, accept a nonnegative value with or without the unit when the context is clear.