LESSON MAKER PRO

Moves on Numbers

Use direction and distance to add rational numbers.

GRADE 7 · 7.NR.1.2

7.NR.1.2 "Show and explain p + q as the number located a distance |q| from p, in the positive or negative direction, depending on whether q is positive or negative. Interpret sums of rational numbers by describing applicable situations."

NAME _____ DATE _____

START, MOVE, LAND

Think of p as your starting number. The addend q tells you how far to move, |q|, and its sign tells the direction. A positive q moves right on a number line, and a negative q moves left.

WORKED EXAMPLE

Show and find -3/2 + 5/4.

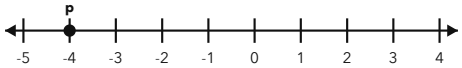


1. Start at p = -3/2.
2. Because 5/4 is positive, move right 5/4 units.
3. -3/2 = -6/4, so -6/4 + 5/4 = -1/4.

Answer: -1/4

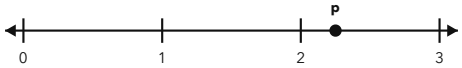
PRACTICE 6 problems

1 Start at p = -4. Add q = 7. State the direction and distance of the move, then find p + q.



ANSWER _____

2 Start at p = 9/4. Add q = -7/4. State the direction and distance of the move, then find p + q.



ANSWER _____

3 For p = -7/8 and q = -3/8, state the direction of the move and find p + q.

ANSWER _____

4 Find 4.6 + (-2.9).

ANSWER _____

5 You are at -1/3, then add 11/6. Write the sum and its value.

ANSWER _____

6 Find -2.75 + 1.5. Then tell whether the result lies between -2 and -1.

ANSWER _____

APPLY IT Show your work

1 In a video game, Rae's score is -12 points. Rae earns 18 points in the next round. Write a sum to model the change, find Rae's new score, and describe the move on a number line.

WORK SPACE

ANSWER _____

2 At the start of a morning bike ride, the temperature is 2.4 degrees C. During the ride, the temperature changes by -5.6 degrees C. What is the new temperature? Explain what the negative change means.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A robot starts at -2 1/3 on a number line. It moves 3/4 unit, then moves -1 5/6 units. Use the number line to trace both moves. What is its final location? Explain the direction of each move.



WORK SPACE AND ANSWER

ANSWER KEY

Moves on Numbers

GRADE 7 · 7.NR.1.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Start at p = -4. Add q = 7. State the direction and distance of the move, then find p + q.	**Move 7 units right. p + q = 3.**
2	Start at p = 9/4. Add q = -7/4. State the direction and distance of the move, then find p + q.	**Move 7/4 units left. p + q = 1/2.**
3	For p = -7/8 and q = -3/8, state the direction of the move and find p + q.	**Move left. p + q = -5/4.**
4	Find 4.6 + (-2.9).	**1.7**
5	You are at -1/3, then add 11/6. Write the sum and its value.	**-1/3 + 11/6 = 3/2**
6	Find -2.75 + 1.5. Then tell whether the result lies between -2 and -1.	**-1.25; yes, it lies between -2 and -1.**

PART 2 · APPLY IT

1. **-12 + 18 = 6. Start at -12 and move 18 units right.** A score gain is positive, so add 18 to -12. The positive addend means a move to the right.
2. **2.4 + (-5.6) = -3.2 degrees C. The temperature decreased by 5.6 degrees C.** Use the starting temperature as p and the temperature change as q. A negative change means the temperature moves down.

CHALLENGE

The robot moves 3/4 unit right, then 1 5/6 units left. Its final location is -3 5/12.

Accept equivalent fractions, decimals where appropriate, and descriptions such as positive direction for right and negative direction for left. Students may show rational-number addition with common denominators or a correct number-line explanation.