

Moves and Sums

Add rational numbers by moving on a number line.

GRADE 7 • NY-7.NS.1.b

NY-7.NS.1.b "Understand addition of rational numbers; $p + q$ is the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative..."

NAME _____

DATE _____

START, THEN MOVE

To add $p + q$, start at p on a number line. Move $|q|$ units right when q is positive and left when q is negative. Opposite numbers are the same distance from 0 in different directions, so their sum is 0.

WORKED EXAMPLE

Point P shows the starting number.
Use the number line to find $-1 + 6$.

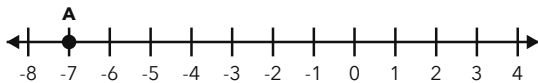


1. P is at -1.
2. Because 6 is positive, move 6 units right.
3. The landing point is 5.

Answer: 5

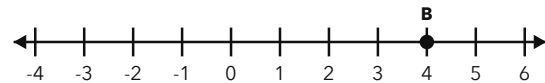
PRACTICE 6 problems

- 1** Point A shows the starting number. Use the number line to find $-7 + 2$.



ANSWER _____

- 2** Point B shows the starting number. Use the number line to find $4 + (-3)$.



ANSWER _____

- 3** Find $-11 + 11$. Then name the pair of opposite numbers.

ANSWER _____

- 4** Find $7/8 + (-3/8)$.

ANSWER _____

- 5** Find $-4 \frac{1}{3} + 7/6$.

ANSWER _____

- 6** Start at $-5/8$ and move $3/4$ unit in the positive direction. Write an addition expression and find the sum.

ANSWER _____

APPLY IT Show your work

- 1** A student is editing a music video. A sound adjustment of $-2\frac{1}{2}$ dB is applied to lower a clip. Then an adjustment of $+4\frac{3}{4}$ dB is applied. Write a sum and state the overall sound change.

WORK SPACE

ANSWER _____

- 2** In an online game, Jordan's team loses 13 points in round one and gains 21 points in round two. Represent the total score change as rational addition. What is the total change, and what does it mean?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The sum $-2\frac{3}{5} + 1\frac{1}{4} + x$ is 0. Find x . Explain why your value of x makes the total 0.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Point A shows the starting number. Use the number line to find $-7 + 2$.	-5
2	Point B shows the starting number. Use the number line to find $4 + (-3)$.	1
3	Find $-11 + 11$. Then name the pair of opposite numbers.	0; -11 and 11 are opposites.
4	Find $7/8 + (-3/8)$.	$1/2$
5	Find $-4 \frac{1}{3} + 7/6$.	$-3 \frac{1}{6}$
6	Start at $-5/8$ and move $3/4$ unit in the positive direction. Write an addition expression and find the sum.	$-5/8 + 3/4 = 1/8$

PART 2 • APPLY IT

1. **$-2 \frac{1}{2} + 4 \frac{3}{4} = 2 \frac{1}{4}$; the sound level has an overall increase of $2 \frac{1}{4}$ dB.** Add the two signed adjustments: $-2 \frac{1}{2} + 4 \frac{3}{4} = 2 \frac{1}{4}$. A positive result means the sound level increased.
2. **$-13 + 21 = 8$; the team has an overall gain of 8 points.** Represent a loss with a negative number and a gain with a positive number. The positive sum of 8 means the team gained 8 points overall.

CHALLENGE

$x = 1 \frac{7}{20}$. The sum of $-2 \frac{3}{5}$ and $1 \frac{1}{4}$ is $-1 \frac{7}{20}$, and $1 \frac{7}{20}$ is its opposite, so the total is 0.

Accept equivalent fraction forms and mixed-number or improper-fraction forms. For written contexts, accept equivalent wording that correctly identifies a positive sum as an increase or gain.