

Zero Balance Moves

Find opposite quantities that cancel to zero.

GRADE 7 • NY-7.NS.1.a

NY-7.NS.1.a "Describe situations in which opposite quantities combine to make 0."

NAME _____

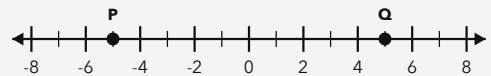
DATE _____

OPPOSITES CANCEL

Opposite quantities are the same distance from 0, but they have different signs. When you add opposites, their total is 0. On a number line, opposite points are equally far from 0 on different sides.

WORKED EXAMPLE

Use the number line. What is $P + Q$?



1. Point P is at -5.
2. Point Q is at +5.
3. -5 and +5 are opposites.
4. $-5 + 5 = 0$.

Answer: 0

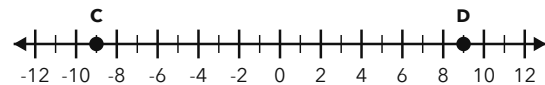
PRACTICE 6 problems

- 1** Use the number line. What is $A + B$?



ANSWER _____

- 2** Use the number line. Write the values of C and D. Then find $C + D$.



ANSWER _____

- 3** Which number is the opposite of $-3/4$? Then add the two opposite numbers.

ANSWER _____

- 4** A submarine moves +12 m, then moves -12 m. What is its combined change in position?

ANSWER _____

- 5** Compute: $-2.5 + 2.5$

ANSWER _____

- 6** Does $-11/6 + 11/6$ equal 0? Write yes or no and an equation.

ANSWER _____

APPLY IT Show your work

- 1** In a basketball video game, a player earns 14 points from a bonus. A scoring correction removes 14 points. What is the player's net score change?

WORK SPACE

ANSWER _____

- 2** A music app uses $\frac{3}{8}$ GB of storage when a playlist downloads. Deleting that playlist changes the storage by $-\frac{3}{8}$ GB. What is the total storage change?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A player's score changes by $-\frac{3}{4}$ point, then by $+1\frac{1}{2}$ points, then by x points. The total score change is 0. Find x . Explain which combined change x cancels.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Use the number line. What is $A + B$?	0
2	Use the number line. Write the values of C and D . Then find $C + D$.	$C = -9, D = 9; C + D = 0$
3	Which number is the opposite of $-3/4$? Then add the two opposite numbers.	$3/4; -3/4 + 3/4 = 0$
4	A submarine moves $+12$ m, then moves -12 m. What is its combined change in position?	0 m
5	Compute: $-2.5 + 2.5$	0
6	Does $-11/6 + 11/6$ equal 0? Write yes or no and an equation.	Yes; $-11/6 + 11/6 = 0$

PART 2 • APPLY IT

- 0 points** The changes are $+14$ points and -14 points. They are opposites, so they combine to 0 points.
- 0 GB** The storage changes are $+3/8$ GB and $-3/8$ GB. They are opposite quantities, so the total change is 0 GB.

CHALLENGE

$x = -3/4$. The first two changes combine to $+3/4$, so $-3/4$ cancels that combined change to make 0.

Accept equivalent equations and descriptions that state the quantities have equal size and opposite signs. For fractions, accept equivalent fraction forms.