

Zero Balance

Use opposite quantities to make zero.

GRADE 7 • 7.NS.A.1a

CCSS.Math.Content.7.NS.A.1a "Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged."

NAME _____

DATE _____

OPPOSITES CANCEL

Opposite quantities have the same distance from 0 but different signs. When you add opposites, their total is 0 because one change undoes the other.

WORKED EXAMPLE

A game score changes by +14 points and then -14 points. What is the total score change?

1. Write the changes: $+14 + (-14)$.
2. The quantities have equal size and opposite signs.
3. $+14 + (-14) = 0$.

Answer: 0 points

PRACTICE 6 problems

1 $+9 + (-9) = ?$

ANSWER _____

2 What quantity combines with -6.5 to make 0?

ANSWER _____

3 Complete the equation: $+3/4 + \underline{\hspace{1cm}} = 0$

ANSWER _____

4 A diver moves -18 m, then +18 m. What is the total change in position?

ANSWER _____

5 Write an addition equation showing the opposite of -11 combining to make 0.

ANSWER _____

6 Does $+5 + (-4)$ combine to make 0? If not, what is the sum?

ANSWER _____

APPLY IT Show your work

- 1** In a video game, Jordan earns 25 coins in one round and loses 25 coins in the next round. What is Jordan's total change in coins?

WORK SPACE

ANSWER _____

- 2** A drone rises 30 feet from its starting height, then descends 30 feet. What is the drone's total change in height?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student says that $-8 + 8 + (-2)$ equals 0 because -8 and $+8$ cancel. Is the student correct? Explain, then find the sum.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	$+9 + (-9) = ?$	0
2	What quantity combines with -6.5 to make 0?	+6.5
3	Complete the equation: $+3/4 + \underline{\hspace{1cm}} = 0$	-3/4
4	A diver moves -18 m, then $+18$ m. What is the total change in position?	0 m
5	Write an addition equation showing the opposite of -11 combining to make 0.	$-11 + 11 = 0$
6	Does $+5 + (-4)$ combine to make 0? If not, what is the sum?	No, the sum is 1.

PART 2 • APPLY IT

1. **0 coins** Represent earning as $+25$ and losing as -25 . Since they are opposites, $+25 + (-25) = 0$.
2. **0 feet** Represent the rise as $+30$ and the descent as -30 . The opposite changes add to 0.

CHALLENGE

No. -8 and $+8$ combine to 0, and $0 + (-2) = -2$.

Accept addition equations with the addends in either order. Accept positive quantities written with or without a plus sign when the meaning is clear.