

Negative Numbers, Opposites and Absolute Value

Grade 6 math · Worksheet Answer Key · Standards: 6.NS.C.5, 6.NS.C.6a, 6.NS.C.7

Each answer key entry shows the reasoning in words, with number-line sketches where they help. Check that your ordered lists run from left to right on a number line, and that every absolute value is a distance with no negative sign.

Standards: 6.NS.C.5, 6.NS.C.6a, 6.NS.C.7 · **Level:** Grade 6

Problem 1 Writing signed numbers

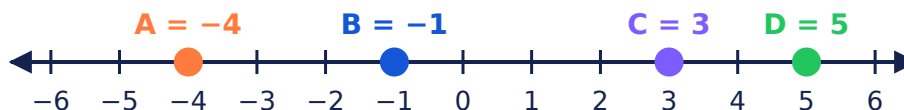
- Below zero is negative: **-8**.
- A deposit adds money: **+35**.
- Above sea level is positive: **+40**.
- A debt is owed money: **-12**.

Problem 2 Finding opposites

The opposite changes the sign: **-14, 9, 0, -3.5**. Zero is its own opposite.

Problem 3 Reading a number line

Count units from 0: A is 4 left, B is 1 left, C is 3 right, D is 5 right.



$$A = -4, B = -1, C = 3, D = 5.$$

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Problem 4 Comparing integers

- 3 is left of 2: **-3 < 2**.
- 7 is left of -4: **-7 < -4**.
- 0 is right of -1: **0 > -1**.
- Same value: **-2.5 = -2.50**.

Problem 5 Absolute values

Each is a distance from 0: **12, 8, 0 and 3.5**.

Problem 6 Ordering integers

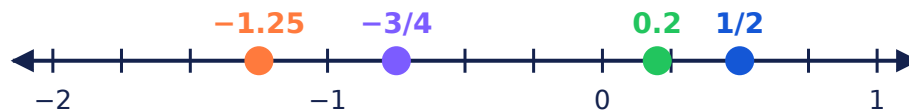
Negatives first, with -8 farthest left: $-8, -3, -1, 2, 9$.

Problem 7 Thermometer readings

The 7 AM reading is -8°F and noon is 3°F . -8 is lower. From -8 up to 0 is 8 degrees, then 3 more: 11 degrees. **7 AM is lower; the rise was 11°F .**

Problem 8 Ordering rational numbers

As decimals: $0.5, -0.75, -1.25, 0.2$.



From left to right: $-1.25, -\frac{3}{4}, 0.2, \frac{1}{2}$.

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Problem 9 Opposite of an opposite

$-(-8) = 8$. $-(-(-3))$: the inner $-(-3) = 3$, then the opposite of 3 is -3 . $-|-6| = -(6) = -6$.
 $-(5) = -5$. **$8, -3, -6, -5$.**

Problem 10 Absolute value comparisons

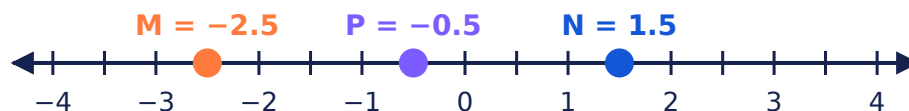
- a. 9 and 5: $|-9| > |5|$.
- b. -9 is left of 5: $-9 < 5$.
- c. 4 and 4: $|-4| = |4|$.
- d. -2 and 2: $-|-2| < |-2|$.

Problem 11 Closer to sea level

$|-32| = 32$ and $|20| = 20$. The smaller distance belongs to the seagull. **The seagull is closer, 20 feet from sea level versus 32 feet.**

Problem 12 Half-unit number line

Each tick is 0.5 . M is 5 ticks left of 0, P is 1 tick left, N is 3 ticks right.



$M = -2.5, P = -0.5, N = 1.5$.

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Problem 13 Ordering elevations

Lowest is the most negative: -186 , then -54 , then 0 , then 940 . **Dry Gulch Basin, Salt Sink, Pelican Bay, Cedar Ridge.**

Problem 14 Same distance from zero

One point is 7 units right of 0 and the other is 7 units left. **The numbers are 7 and -7 , which are opposites.**

Problem 15 Daily low temperatures

Coldest is the least number, -11 . Order from greatest to least: 6 , 0 , -2 , -4 , -11 . **Wednesday was coldest; warmest to coldest: Tuesday, Thursday, Friday, Monday, Wednesday.**

Problem 16 Trivia game scores

Higher score wins: 10 , -5 , -15 , -25 . Distances from 0: 10 , 5 , 15 , 25 , so the greatest is 25 . **Luis is winning. Order: Luis, Kai, Priya, Omar. Omar's score is farthest from 0.**

Problem 17 Ocean and sky

Order: -240 , -75 , 90 , $3,600$. Distances from sea level: 240 , 75 , 90 , $3,600$; the smallest is 75 . **Submarine, whale, gull, plane. The whale is closest to sea level.**

Problem 18 Mirror points

The first point is -4.5 , and its opposite is 4.5 . $|-4.5| = 4.5$ and $|4.5| = 4.5$. **They match because each point is 4.5 units from 0, just on opposite sides.**

Problem 19 Account balances

Compare on a number line: -12.25 is farthest left, then -8.50 , then 0 , then 3.75 . **Zoe, Mia, Ben, Eli in that order, and Zoe owes the most (\$12.25).**

Problem 20 True or false

- a. **True.** Negatives lie left of 0 and positives right of it, e.g. $-100 < 1$.
- b. **False.** $|-9| > |2|$ but $-9 < 2$.
- c. **True.** The opposite of 6 is -6 .
- d. **True.** Distance cannot be negative, e.g. $|-3| = 3$.