

Distance From Zero

Use absolute value to measure and compare distances from 0.

GRADE 6 • MA.6.NSO.1.4

MA.6.NSO.1.4 "Solve mathematical and real-world problems involving absolute value, including the comparison of absolute value."

NAME _____

DATE _____

THE BIG IDEA

Absolute value tells how far a number is from 0 on a number line. Distance is never negative. To compare absolute values, compare each number's distance from 0.

WORKED EXAMPLE

Find $|-14|$.

1. -14 is 14 units from 0.
2. Distance cannot be negative.
3. $|-14| = 14$.

Answer: 14

PRACTICE 6 problems

1 Find $|-9|$.

ANSWER _____

2 Find $|7|$.

ANSWER _____

3 Write $<$, $>$, or $=$ to compare: $|-12|$ $\underline{\hspace{1cm}}$ $|5|$

ANSWER _____

4 Which number has the greater absolute value: -4 or 10?

ANSWER _____

5 Solve: $|x| = 6$

ANSWER _____

6 Order these numbers from least to greatest absolute value: -3, 8, -11

ANSWER _____

APPLY IT Show your work

- 1** In a skate park design app, one ramp starts 18 feet below the reference level. Another ramp starts 13 feet above the reference level. Which ramp starts farther from the reference level, and how much farther?

WORK SPACE

ANSWER _____

- 2** During a video game round, Jay's score changed by -25 points after one challenge and +17 points after another challenge. Which change had the greater absolute value? By how many points?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Find all integer values of x that make both $|x| < 5$ and $|x| > 2$ true.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find $ -9 $.	9
2	Find $ 7 $.	7
3	Write $<$, $>$, or $=$ to compare: $ -12 $ ___ $ 5 $	$>$
4	Which number has the greater absolute value: -4 or 10 ?	10
5	Solve: $ x = 6$	$x = -6$ or $x = 6$
6	Order these numbers from least to greatest absolute value: $-3, 8, -11$	$-3, 8, -11$

PART 2 • APPLY IT

1. **The ramp 18 feet below the reference level is farther. It is 5 feet farther.** Compare $|-18|$ and $|13|$. Since 18 is greater than 13, the below-level ramp is farther by $18 - 13 = 5$ feet.
2. **The -25-point change had the greater absolute value. It was greater by 8 points.** Find the absolute values: $|-25| = 25$ and $|17| = 17$. The difference is $25 - 17 = 8$ points.

CHALLENGE

$x = -4, -3, 3, \text{ or } 4$

Accept equivalent wording for comparisons and real-world answers if the correct distance and difference are stated. For the challenge, accept the four integer values in any order.