Lesson 7-3 · Session 1

Absolute Value as Distance

Name _____ Date _____ Period _____

Maryland Standard 6.NOS.8 · Learning target — I can use absolute value to describe how far a number is from zero.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- Absolute value is the distance a number is from 0 on the number line — always zero or positive.
- The absolute value of −7 is 7, and the absolute value of 7 is also 7, because both are 7 units from 0.
- Watch out — a larger absolute value does not mean a larger number when the number is negative.
- Check it — absolute value answers "how far from zero," so the answer is never negative.

WORKED EXAMPLE

Using Absolute Value to See Which Number Is Closer to 0

One freezer logged −23 degrees and another logged 17 degrees. Which reading sits closer to 0?

Step 1 Absolute value measures distance from 0, so the sign does not matter here.

Step 2 Distance from 0 for the first reading: |−23| = 23

Step 3 Distance from 0 for the second reading: |17| = 17

Step 4 Compare the two distances; the shorter distance sits closer to 0.

Answer **|−23| = 23 and |17| = 17, so the 17-degree reading is closer to 0.**

Practice

1. Find the absolute value of −9. _____

Answer _____

SHOW YOUR THINKING

2. Find the absolute value of 6. _____

Answer _____

SHOW YOUR THINKING

3. A hiker is at an elevation of −20 feet (below sea level). How far is the hiker from sea level? Use absolute value.

Answer _____

SHOW YOUR THINKING

4. Write each answer on the line.

a. |−15| = _____
b. |24| = _____
c. |0| = _____
d. |−3.5| = _____
e. Which is closer to 0, −11 or 12? _____

Answer _____

SHOW YOUR THINKING

5. Freezer Check. A freezer logged −18 degrees. Write the absolute value of that reading, then tell what it means.

Answer _____

SHOW YOUR THINKING

6. Two Balances. One account shows −52 dollars and another shows 37 dollars. Find the absolute value of each balance, then name the account closer to a zero balance.

Answer _____

RECORD YOUR RESPONSE

7. Cave and Kite. A cave floor sits at −45 feet and a kite flies at 45 feet. Explain why the two absolute values match even though the two places are different.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

8. Reggie wrote |−7| = −7. Explain why an absolute value can never be negative, then write the correct value.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Find |−36| and |36|.

Answer _____ both values

SHOW YOUR THINKING

10. Which is closer to zero, −7 or 11? Use absolute value to explain.

Answer _____ the answer and why

EXPLAIN WITH MATHEMATICAL EVIDENCE

11. Two Questions. For −50 and 45, name the greater number and the number farther from zero.

Answer _____ both answers

RECORD YOUR RESPONSE

12. Find the Mistake. Nia wrote |−12| = −12. Explain the mistake.

Answer _____ the mistake and the value

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 7-2 Session 2. Find the opposite of −3/5.

Answer _____

SHOW YOUR THINKING

14. From Lesson 6-6 Session 1. Simplify 6y + 4 + 2y.

Answer _____

SHOW YOUR THINKING

15. From Lesson 4-1 Session 1. Write 5 out of 20 as a percent.

Answer _____

SHOW YOUR THINKING

Test practice

16. |−2.5| equals —

□ A. −2.5	□ B. 2.5
□ C. 25	□ D. 0

17. Which number is farthest from zero?

□ A. 10	□ B. −5
□ C. −30	□ D. 20

18. The bars in |n| mean —

- □ A. multiply
- □ B. the opposite
- □ C. the sign
- □ D. distance from zero

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
A distance is zero or positive. Include units. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check signs, scale, and labels. Use a number line or coordinate grid to verify one response.