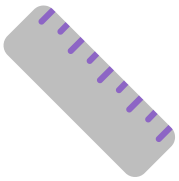
Name & Surname: _____ Class: _____ Date: _____

ABSOLUTE VALUE EXPLORERS



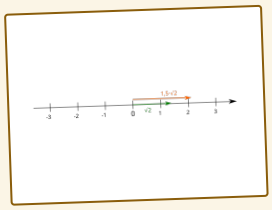
Distance from zero tells the size.

About 40 minutes Level ★★★☆☆

ABSOLUTE VALUE MEANS DISTANCE

The **absolute value** of a number is its **distance** from 0.

- Write it with **bars**, like |5| and |-5|.
- Count **units** to 0: both 5 and -5 are 5 units from 0, so |5| = 5 and |-5| = 5.
- Distance is never **negative**, so |0| = 0 and every other absolute value is positive.
- For **money**, a balance of -30 dollars has |-30| = 30 to show a debt of $30.



TASK A

/4

Use the bars to find distance from 0.

1 A checking account shows a balance of -30 dollars. Zero means no **debt**. How many dollars is the **distance** from 0? That distance is |-30|.

0 Zero

−30 Balance

Answer: _____ **dollars**

2 A diver swims at -12 feet. Sea level is at 0 feet. What is the **distance** to sea level in **feet**? That distance is |-12|.

0 Sea level

−12 Diver

Answer: _____ **feet**

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VALUES AND DISTANCES

Build fluency finding absolute values of rational numbers.

TASK B

/12

Find each absolute value as distance from 0.

WARM UP

1. Find |-8| as **distance** from 0.

   Answer: _____

2. Find |6| as **distance** from 0.

   Answer: _____

3. Find |0| as **distance** from 0.

   Answer: _____

4. Find $|-\frac{3}{4}|$ as **distance** from 0.

   Answer: _____

PRACTICE

5. Find |-2.5| as **distance** from 0.

   Answer: _____

6. Find $|5\frac{1}{2}|$ as **distance** from 0.

   Answer: _____

7. Which **value** is greater: |-4| or |3|? Write the greater **value**.

   Answer: _____

8. Find the **opposite** of |-9|. Think about **sign**.

   Answer: _____

PROBLEM SOLVING

9. A **point** is at -7 on a **number line**. What is |-7|?

   Answer: _____

10. What is the greatest **absolute value** among |-1|, |-6|, and |3|?

    Answer: _____

11. **Explain** how you **know** that |-10| = |10|.

    Answer: _____

12. Is |-2.75| = 2.75 **true**? **Explain** how you know.

    Answer: _____

KEY WORDS

absolute value: distance from 0 on a number line

distance: how far, always 0 or positive

rational number: an integer, fraction, or decimal

opposite: same distance, other side of 0

magnitude: size without sign

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SPOT THE MISTAKE

Study each student's work and fix the wrong step.

TASK C

/6

Find the wrong step and explain the mistake.



Student A

Work out |-30| to show the size of a -30 dollar balance.

1. |-30| means distance from 0
2. = -30
3. So the debt size is -30 dollars

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student B

Work out |3 - 8|.

1. |3 - 8|
2. = 3 + 8
3. So the answer is 11

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student C

Find the opposite and the absolute value of -4.

1. The opposite of -4 is 4
2. The absolute value |-4| is -4
3. So opposite is 4 and absolute value is -4

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____

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SIZE IN REAL LIFE

Use absolute value to describe debts, depths, and temperatures.

TASK D

/12

Solve each real-life problem using absolute value.

WARM UP

1 A bank balance is -30 dollars. Write |-30| = ? to show **debt** size in **dollars**.

Answer: _____

2 The morning temperature is -5 degrees F. What is |-5| to show how many **degrees** below **zero**?

Answer: _____

3 A diver is at -12 feet. What is |-12| to show **depth** in **feet**?

Answer: _____

4 An elevator is 4 floors above ground at +4. What is |4| to show **distance** from **ground**?

Answer: _____

PRACTICE

5 Which **debt** is larger: -20 dollars or -45 dollars? Write its **absolute value**.

Answer: _____

6 Find $|-\frac{1}{2}|$ to show a **depth** of $\frac{1}{2}$ mile below sea level. How many **miles**?

Answer: _____

7 Find |-3.5| for a balance change of -3.5 dollars. What is the **size** in **dollars**?

Answer: _____

8 Work out |-7 + 2| by adding **inside** first, then finding **distance**.

Answer: _____

PROBLEM SOLVING

9 A checking account shows -52 dollars and another shows -18 dollars. Which **account** shows the larger **debt**? Write its absolute value.

Answer: _____

10 A fish swims at -6 feet and a bird flies at 9 feet. Which is farther from 0? Write its **distance** from **zero**.

Answer: _____

11 At 6 AM it is -2 degrees F, at noon it is 8 degrees F. Which **temperature** has the greater **absolute value**? Write that value.

Answer: _____

12 **Explain** how you **know** when to use the balance and when to use absolute value for -30 dollars.

Answer: _____

DID YOU KNOW?

Bank statements use a **minus** sign for debt, but **absolute value** turns -30 dollars into a debt size of $30.

CHALLENGE TIME!

Can you find three **numbers** with absolute value greater than 10? Tell a **partner** your numbers.

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LINE UP DISTANCES

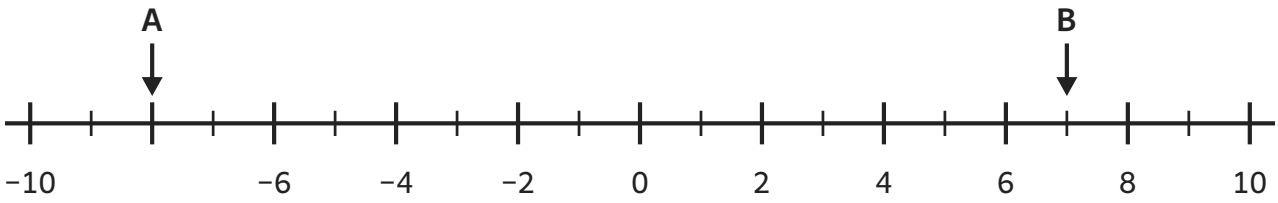
Read number lines and put the method in order.

TASK E

/7

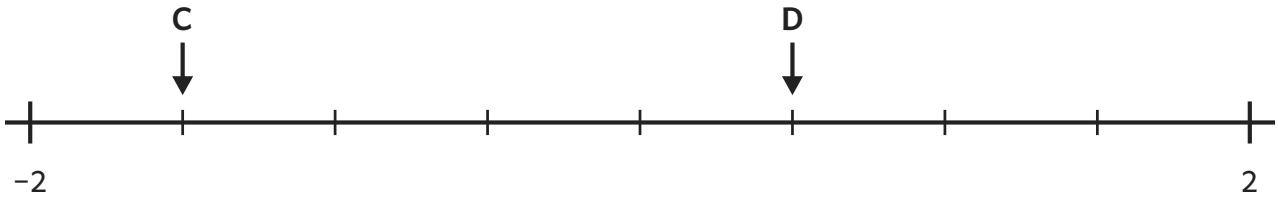
Read each number line and find distance from 0.

1



A = ☐ B = ☐ Draw an arrow to show: -5, 5

2



C = ☐ D = ☐ Draw an arrow to show: $\frac{3}{2}$

TASK F

Example done for you

/3

Order the steps to find absolute value.

☐ Write the result with **bars**, like |-4| = 4.

1 Find the **number** on a **number line** with 0 marked.

☐ Remember **distance** is never negative.

☐ Count the **units** between the number and 0.

HOW DID I DO?

Circle a face for each line.

I can find the absolute value of any rational number. ☹ 😐 ☺

I can explain absolute value as distance from 0. ☹ 😐 ☺

I can use absolute value to describe size in real life. ☹ 😐 ☺

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Answer sheet: Absolute Value Explorers

Task A

1. 30 dollars
2. 12 feet

Task B

1. 8
2. 6
3. 0
4. $\frac{3}{4}$
5. 2.5
6. $5\frac{1}{2}$
7. 4
8. -9
9. 7
10. 6
11. Both -10 and 10 are 10 units from 0, so both absolute values are 10.
12. True because -2.75 is 2.75 units from 0.

Task C

1. Step 2 is wrong: They kept the negative sign. Distance from 0 is never negative, so count units to 0. Correct answer: 30
2. Step 2 is wrong: They made each number positive first. Work out inside first: 3 - 8 = -5, then |-5| = 5. Correct answer: 5
3. Step 2 is wrong: They confused opposite with absolute value. Opposite flips side of 0, but absolute value is distance from 0. Correct answer: 4

Task D

1. 30
2. 5
3. 12
4. 4
5. 45
6. $\frac{1}{2}$
7. 3.5
8. 5
9. 52
10. 9
11. 8
12. The balance -30 shows direction below 0, while |-30| = 30 shows size of debt in dollars.

Task E

1. A = -8; B = 7; arrows at -5, 5
2. C = $-\frac{3}{2}$; D = $\frac{1}{2}$; arrows at $\frac{3}{2}$

Task F

1. Find the number on a number line with 0 marked. 2. Count the units between the number and 0. 3. Remember distance is never negative. 4. Write the result with bars, like |-4| = 4.

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