EXPLORE ACTIVITY 2 Real World 7.NS.1, 7.NS.1b

Adding on a Number Line

Just as you can add positive integers on a number line, you can add negative integers.

The temperature was 2 °F below zero. The temperature drops by 5 °F. What is the temperature now?

A What is the initial temperature written as an integer?

_____

B Mark the initial temperature on the number line.

C A drop in temperature of 5° is like adding −5° to the temperature.

Count on the number line to find the final temperature. Mark the temperature now on the number line.

D What is the temperature written as an integer?

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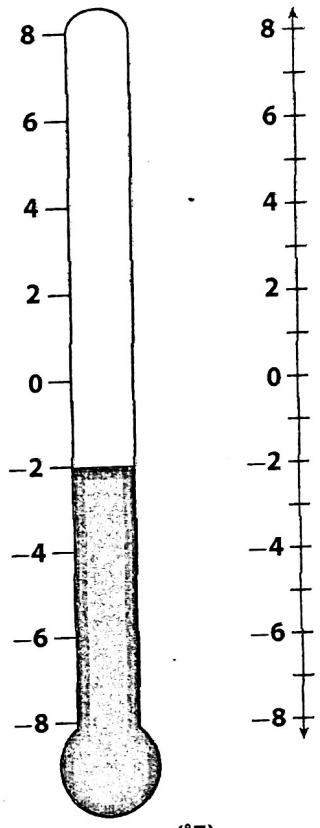
The temperature is _____

above / below zero.



Temperature (°F)

Reflect

2. **What If?** Suppose the temperature is −1 °F and drops by 3 °F. Explain how to use the number line to find the new temperature.

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3. **Communicate Mathematical Ideas** How would using a number line to find the sum 2 + 5 be different from using a number line to find the sum −2 + (−5)?

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4. **Analyze Relationships** What are two other negative integers that have the same sum as −2 and −5?

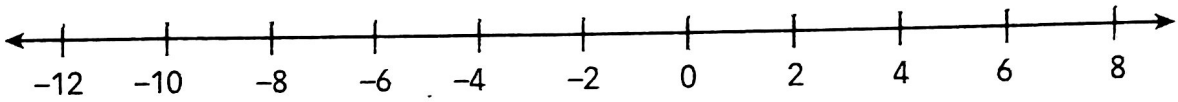
_____

Talk About It

Solve the problems below as a group.

8 Jason's football team lost 6 yards from their starting position and then lost another 5 yards. What number represents a loss of 6 yards? a loss of 5 yards? _____

9 Use a number line to find the team's total loss.



10 On the next play, the team gains 12 yards. Will the team be at their original starting position? Explain.

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11 A weather forecaster says the temperature will be about −5°C "give or take" 10 degrees.

What is the greatest possible temperature? _____

What is the least possible temperature? _____

12 Explain how you found your answers to problem 11.

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Try It Another Way

You can add integers by decomposing numbers to form additive inverses that add to 0. For example, to add −8 + 10, you can think of 10 as 8 + 2.

$$\begin{aligned} -8 + 10 &= -8 + (8 + 2) \\ &= (-8 + 8) + 2 \\ &= 0 + 2 \\ &= 2 \end{aligned}$$

Use the method shown above to do the problems below. Show your steps.

13 10 + (−4) _____

14 −12 + 7 _____