Name _____   Date_____
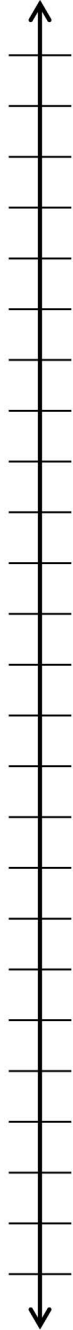
Real-World Positive and Negative Numbers and Zero

1. Write a story problem that includes both integers −8 and 12.

2. What does zero represent in your story problem?

3. Choose an appropriate scale to graph both integers on the vertical number line. Label the scale.

4. Graph both points on the vertical number line.

1. Express each situation as an integer in the space provided.

    a. A gain of 56 points in a game   _____

    b. A fee charged of $2   _____

    c. A temperature of 32 degrees below zero   _____

    d. A 56 yard loss in a football game   _____

    e. The freezing point of water in Celsius   _____

    f. A $12,500 deposit   _____

For Questions 2–5, use the thermometer to the right.

2. Each sentence is stated *incorrectly*. Rewrite the sentence to correctly describe each situation.

    a. The temperature is -10 degrees Fahrenheit below zero.

    b. The temperature is -22 degrees Celsius below zero.

3. Mark the integer on the thermometer that corresponds to the temperature given.

    a. 70°F

    b. 12°C

    c. 110°F

    d. -4°C

4. The boiling point of water is 212°F. Can this thermometer be used to record the temperature of a boiling pot of water? Explain.

5. Kaylon shaded the thermometer to represent a temperature of 20 degrees below zero Celsius as shown in the diagram. Is she correct? Why or why not? If necessary, describe how you would fix Kaylon's shading.
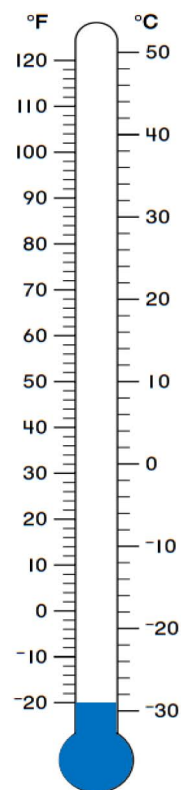
1. Write a story problem that includes both integers −8 and 12.

    Answers may vary. One boxer gains 12 pounds of muscle to train for a fight. Another boxer loses 8 pounds of fat.
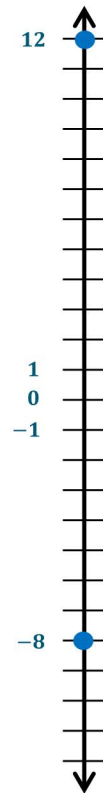
2. What does zero represent in your story problem?

    Zero represents no change in the boxer's weight.

3. Choose an appropriate scale to graph both integers on the vertical number line. Label the scale.

    I chose a scale of 1.

4. Graph both points on the vertical number line.

```
            ▲
       12 ──●
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
        1 ──┤
        0 ──┤
       −1 ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
          ──┤
       −8 ──●
          ──┤
          ──┤
          ──┤
            ▼
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1. Express each situation as an integer in the space provided.

    a. A gain of 56 points in a game   56

    b. A fee charged of $2   −2

    c. A temperature of 32 degrees below zero   −32

    d. A 56 yard loss in a football game   −56

    e. The freezing point of water in Celsius   0

    f. A $12,500 deposit   12,500

For Questions 2–5, use the thermometer to the right.

2. Each sentence is stated *incorrectly*. Rewrite the sentence to correctly describe each situation.

   a. The temperature is -10 degrees Fahrenheit below zero.

      Correct: The temperature is $-10°$F.

      OR

      The temperature is 10 degrees below zero Fahrenheit.

   b. The temperature is -22 degrees Celsius below zero.

      Correct: The temperature is $-22°$C.

      OR

      The temperature is 22 degrees below zero Celsius.

3. Mark the integer on the thermometer that corresponds to the temperature given.

   a. $70°$F

   b. $12°$C

   c. $110°$F

   d. $-4°$C

4. The boiling point of water is $212°$F. Can this thermometer be used to record the temperature of a boiling pot of water? Explain.

   No, it cannot because the highest temperature in Fahrenheit on this thermometer is $120°$.

5. Kaylon shaded the thermometer to represent a temperature of 20 degrees below zero Celsius as shown in the diagram. Is she correct? Why or why not? If necessary, describe how you would fix Kaylon's shading.

   She is incorrect because she shaded a temperature of $-20°$F. I would fix this by marking a line segment at $-20°$C and shade up to that line.