Name _____ Date_____

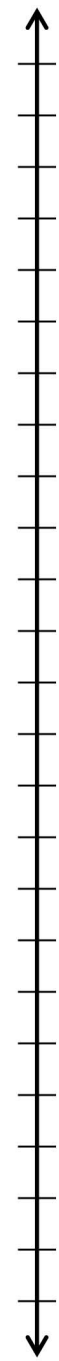
Real-World Positive and Negative Numbers and Zero

1. Write a story problem using sea level that includes both integers -110 and 120.

2. What does zero represent in your story problem?

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

4. Graph and label both points on the vertical number line.



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1. Write an integer to match the following descriptions.

   a. A debit of $\$40$ _____

   b. A deposit of $\$225$ _____

   c. $14{,}000$ feet above sea level _____

   d. A temperature increase of $40°\text{F}$ _____

   e. A withdrawal of $\$225$ _____

   f. $14{,}000$ feet below sea level _____

For Problems 2–4, read each statement about a real-world situation and the two related statements in parts (a) and (b) carefully. Circle the correct way to describe each real-world situation*; possible answers include either (a), (b), or both (a) and (b)*.

2. A whale is 600 feet below the surface of the ocean.

   a. The depth of the whale is 600 feet from the ocean's surface.

   b. The whale is -600 feet below the surface of the ocean.

3. The elevation of the bottom of an iceberg with respect to sea level is given as -125 feet.

   a. The iceberg is 125 feet above sea level.

   b. The iceberg is 125 feet below sea level.

4. Alex's body temperature decreased by $2°\text{F}$.

   a. Alex's body temperature dropped $2°\text{F}$.

   b. The integer -2 represents the change in Alex's body temperature in degrees Fahrenheit.

5. A credit of $\$35$ and a debit of $\$40$ are applied to your bank account.

   a. What is an appropriate scale to graph a credit of $\$35$ and a debit of $\$40$? Explain your reasoning.

   b. What integer represents "a credit of $\$35$" if zero represents the original balance? Explain.

   c. What integer describes "a debit of $\$40$" if zero represents the original balance? Explain.

   d. Based on your scale, describe the location of both integers on the number line.

   e. What does zero represent in this situation?

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1. Write a story problem using sea level that includes both integers -110 and 120.

   Answers may vary. On the beach, a man's kite flies at 120 feet above the water's surface. In the ocean, a white shark swims at 110 feet below the water's surface.

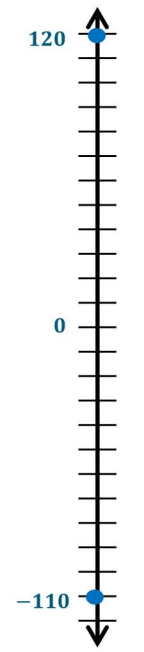
2. What does zero represent in your story problem?

   Zero represents the water's surface level.

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

   I chose a scale of 10.

4. Graph and label both points on the vertical number line



1. Write an integer to match the following descriptions.

   a. A debit of $\$40$ — -40

   b. A deposit of $\$225$ — 225

   c. $14,000$ feet above sea level — $14,000$

   d. A temperature increase of $40°\text{F}$ — 40

   e. A withdrawal of $\$225$ — -225

   f. $14,000$ feet below sea level — $-14,000$

For Problems 2–4, read each statement about a real-world situation and the two related statements in parts (a) and (b) carefully. Circle the correct way to describe each real-world situation*; possible answers include either (a), (b), or both (a) and (b)*.

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   a. The depth of the whale is 600 feet from the ocean's surface.

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   a. The iceberg is 125 feet above sea level.

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4. Alex's body temperature decreased by $2°\text{F}$.

   a. Alex's body temperature dropped $2°\text{F}$.

   b. The integer -2 represents the change in Alex's body temperature in degrees Fahrenheit.

5. A credit of $\$35$ and a debit of $\$40$ are applied to your bank account.

   a. What is an appropriate scale to graph a credit of $\$35$ and a debit of $\$40$? Explain your reasoning.

   Answers will vary. I would count by 5s because both numbers are multiples of 5.

   b. What integer represents "a credit of $\$35$" if zero represents the original balance? Explain.

   35; a credit is greater than zero, and numbers greater than zero are positive numbers.

   c. What integer describes "a debit of $\$40$" if zero represents the original balance? Explain.

   -40; a debit is less than zero, and numbers less than zero are negative numbers.

   d. Based on your scale, describe the location of both integers on the number line.

   If the scale is multiples of 5, then 35 would be 7 units to the right of (or above) zero, and -40 would be 8 units to the left of (or below) zero.

   e. What does zero represent in this situation?

   Zero represents no change being made to the account balance. In other words, no amount is either subtracted or added to the account.

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