A **quantity** is a measured amount.

- A quantity can be measured with either positive or negative numbers.
- Positive or negative numbers are determined by comparing them to zero.



Which can be represented using a **positive number**? Explain.

- A Mt. George is 1200 feet (366 meters) above sea level.
- B A large fish was seen about 10 feet (3 meters) below sea level.
- C A boat floating on the sea.

Which can be represented using a **negative number**? Explain.

- A Mt. George is 1200 feet (366 meters) above sea level.
- B A large fish was seen about 10 feet (3 meters) below sea level.
- C A boat floating on the sea.

In your own words, what are positive and negative numbers?









 Today's high temperature will be 35 degrees Fahrenheit. At night, the temperature is expected to drop to 15 degrees below zero.





3. New Orleans is 3 feet (1 meter) below sea level. Miami is about 6 feet (2 meters) above sea level.



 New York is 33 feet (10 meters) above sea level. Lake Frome in Australia is 20 feet (6 meters) below sea level.



We will represent quantities using positive and negative numbers. Closure

Skill Closure

- 1 Read the problem.
- 2 Identify the quantities. (underline)
- 3 Represent the quantities. (plot)
- **4** Interpret the quantities. (answer questions orally)
- 1. A seagull is flying at an elevation of 15 feet above the sea. A fish swims 25 feet below sea level.



2. The temperature on a snowy mountain is 30 degrees Fahrenheit below zero. The temperature on the sandy beach is 60 degrees Fahrenheit.



Concept Closure

The school's swimming pool is 12 feet deep and the diving board was 3 feet above the water.

Alexis said these quantities could be represented with positive and negative numbers as 12 and -3. Do you agree? Explain.



Summary Closure

What did you learn today about representing quantities using positive and negative numbers?





- **B.** Which temperature is a negative number, the refrigerator's or the freezer's? Explain.
- C. If the temperature of the freezer **rises** 3 degrees, what would be the new temperature? Explain.
- 2. To make tea, boil water to 100 degrees Celsius. To make ice cubes for iced tea, freeze water to -10 degrees Celsius.



- A. Does zero represent the amount of water or water temperature?
- **B.** Which temperature is a positive number, boiling water or freezing water? Explain.
- C. If the temperature of the boiling water **rises** 10 degrees, what is the new temperature? Explain.







3. In Field A, a grape farmer had a crop of 100 pounds more grapes than last year. Field B had a crop of 60 pounds less than last year.



- **B.** Which field's yield is a negative number, Field A or B? Explain.
- **C.** Which field's yield is a positive number, Field A or B? Explain.
- 4. A 30-foot high oak tree was found to have 15-foot deep roots, giving it strength and stability.



- A. Does zero represent strength or ground level?
- **B.** Which is a negative number, the height of the oak tree or the depth of its roots? Explain.
- C. If they cut 10 feet from the top of the oak tree, how high is the tree now?



We will represent quantities using positive and negative numbers.

Periodic Review 1

💵 Listening

Listen carefully to the problem. Label the quantities and answer the questions.



Reading

Read the paragraph. Represent the quantities.

Contestants on the reality show Survivor had to participate in many challenges. They had to climb 30-foot trees and dive into 50-foot deep lakes. They had to hike four miles one way and then hike four miles the opposite way. The temperature averaged 85 degrees above zero with

1 inch of rain per day. Each participant had to commit to a maximum of 44 days for the adventure, but if he or she got voted off, their time could be shortened by 7, 14, or 21 days. The winner will receive \$1 million dollars but had to spend \$5000 to go to the interviews. A total of 396 people have competed so far.

Last week, I played a fantasy adventure video game. I climbed a tower that was 200 feet tall. Then, I jumped off the tower and dove into a lake that was 82 feet <u>deep</u>. Then, I travelled through icy caverns where the temperature went as low as <u>60</u> degrees below zero, but I brought a magical torch whose fire was as hot as 210 degrees above zero. At the beginning of the game, I had a debt of 50,000 gold coins, and I had to run away from ogres that were also loan collectors. At the end of the game, I defeated a rich dragon, and gained 450,000 gold coins. It took me around <u>170 hours</u> to get the best ending.



We will represent quantities using positive and negative numbers.

Periodic Review 3

🗐) Writing

Read the statements. Represent the quantities.

| Statement | Represented as a Positive or Negative Number |
|---|---|
| 1. The hot air balloon went 200 feet high. | |
| 2. The scuba diver explored a 300-foot depth. | |
| 3. The aluminum melted at 1220 degrees (°F). | |
| 4. George missed 3 hours of work today. | |
| Construction of the tall building started with a 20-foot deep foundation. | |
| 6. John got \$1.00 off for his movie tickets. | |
| 7. Mari slept past the alarm by 5 minutes. | |
| 8. José woke up 15 minutes before the sunrise. | |
| The coldest winter was recorded at 60 degrees below 0(°F). | |
| 10. Bob got a raise of \$691 at work today. | |
| Jane's rocket toy went up as high as 270 feet into the air. | |
| The criminal spent 345 days in community service as punishment. | |

