**Problem Solving**

**Graphing Relationships**

Sketch a graph for the given situation. Tell whether the graph is discrete or continuous.

1. A giraffe is born 6 feet tall and continues to grow at a steady rate until it is fully grown.

2. The price of a used car is discounted $200 each week.

3. A city planner buys more buses as the population of her city grows.

4. Joseph is sky-diving. At first, he is free-falling rapidly and then he releases his parachute to slow his descent until he reaches the ground.

Choose the graph that best represents the situation.

5. Rebekah turns on the oven and sets it to 300°F. She bakes a tray of cookies and then turns the oven off.
   - A Graph 1
   - B Graph 2
   - C Graph 3
   - D Graph 4

6. Leon puts ice cubes in his soup to cool it down before eating it.
   - F Graph 1
   - G Graph 2
   - H Graph 3
   - J Graph 4

7. Barlee has the flu and her temperature rises slowly until it reaches 101°F.
   - A Graph 1
   - B Graph 2
   - C Graph 3
   - D Graph 4

8. On a hot day, Karin walks into and out of an air-conditioned building.
   - F Graph 1
   - G Graph 2
   - H Graph 3
   - J Graph 4
**Reteach**

**Graphing Relationships (continued)**

A graph can be continuous or discrete. Continuous means the situation can include fractions or decimals. Discrete means the situation must have only specific amounts.

### Continuous

- Time
- Temperature
- Distance

### Discrete

- People
- Animals
- Objects

![Graphs showing continuous and discrete relationships](image)

Sketch a graph of each situation. Tell whether the graph is continuous or discrete.

1. A graph is born 6 feet tall and continues to grow at a steady rate until it is 7 feet tall.
   - Continuous

2. The price of a used car is discounted $200 each week.
   - Discrete

3. A city planner buys more buses as the population of her city grows.
   - Discrete

Choose the graph that best represents the situation.

4. Rebekah turns on the oven and sets it to 300°F. She bakes a tray of cookies and then turns the oven off.
   - Graph 1

5. Leon puts ice cubes in his soup to cool it down before eating it.
   - Graph 2

6. Bariles has the flu and her temperature rises slowly until it reaches 101°F.
   - Graph 3

7. On a hot day, Kevin walks in and out of an air-conditioned building.
   - Graph 4

8. A giraffe is born 6 feet tall and continues to grow at a steady rate until it is full-grown.
   - Graph 5

### Reading Strategies

**Use a Model**

A relationship between variables is often shown as a continuous graph. Study the segments of the continuous graph below and the common phrases that describe them.

Choose the segment of the graph that each phrase describes.

1. Increased steadily
   - Graph 1

2. Remained constant
   - Graph 2

3. Increased sharply/dramatically
   - Graph 3

Choose the segment of the graph that each phrase describes.

1. Dropped sharply/dramatically
   - Graph 4

2. Increased steadily/gradually
   - Graph 5

### Challenge

**Time, Distance, and Speed**

You have already seen graphs that show an object’s distance related to time or an object’s speed related to time. However, for any one object, the distance it travels and how long it takes to travel that distance are directly related to its speed. See if you can make the graphical connection between distance and speed.

For 1–3, draw a line from each graph of distance and time to its corresponding graph of distance and speed.

1. **Graph A**
   - Speed

2. **Graph B**
   - Distance

3. **Graph C**
   - Time

4. This graph shows Tony’s distance from home as he drives away in his car. Sketch a graph of Tony’s speed.

   - Graph D

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