Name _____ Period_____ Date_____

## **Qualitative Graphs** (page 1)

Graphs can show a relationship between quantities without using specific numbers on the axes.
An example is given to the right.

Given that the graph represents the water level in a bath tub, describe the change in the water level over time.

Possible analysis: *There is no water in the bath tub at the start. The faucet is turned on and the water level increases at a constant rate. When the water is at the desired height, the faucet is turned off and the water level does not change. Then the plug is pulled and the water drains at a constant rate until the tub is empty.*
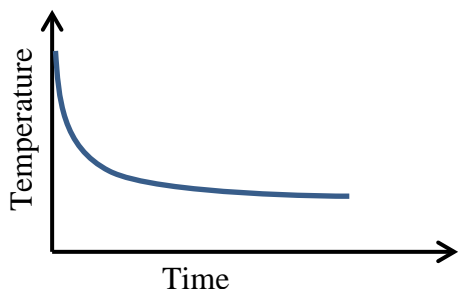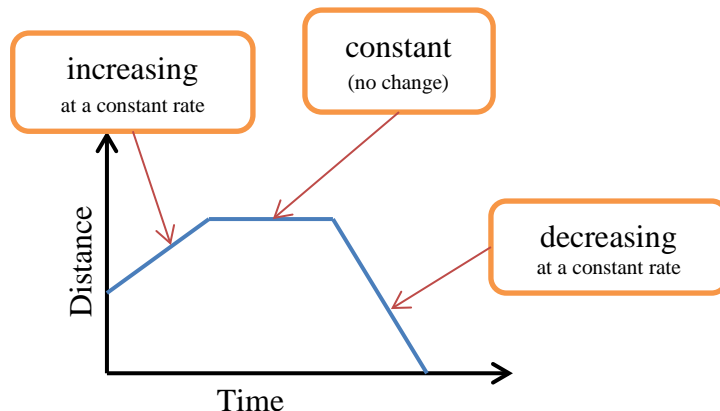
The graph to the left shows the temperature of a cup of hot chocolate. Describe the change in temperature over time.

Possible analysis: *In the beginning, the temperature of the hot chocolate cools down rapidly at a varied rate. Then it cools down at a slower rate, finally leveling off.*

*Example:* The graph to the right shows a sketch of the following situation: Charlie walks to Jayden's house and they ride a bus to school together. The bus makes one more stop before arriving at school. Identify the letter that matches how the graph relates to the story.

___The bus stops.

___Charlie gets to Jayden's house and waits for the bus.

___Charlie walks to Jayden's house at a constant rate.

___The bus resumes at the same rate.

___Charlie and Jayden are riding the bus to school. The bus is moving at a constant rate, faster than Charlie's walking rate.
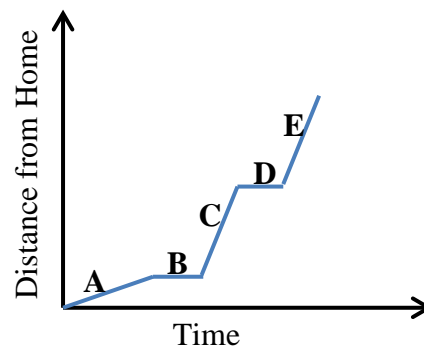
# Qualitative Graphs (page 2)

(Answers to problem on previous page: D, B, A, E, C)

1. The graph to the right shows the number of students in the cafeteria during the morning and afternoon. Match the description with the graph displaying the change in the number of students over time.
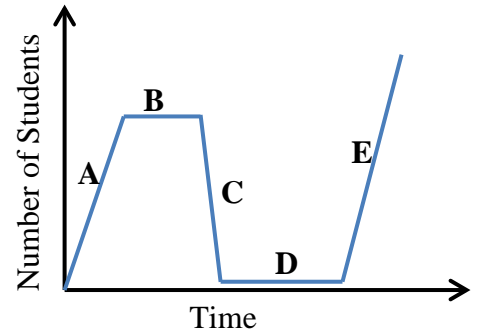
___After breakfast, the number of students decreases.

___The number of students increases for lunch, putting more students in the cafeteria for lunch than breakfast.

___Only the cafeteria student workers remain in the cafeteria between breakfast and lunch.

___Students begin to enter the cafeteria for breakfast at a steady rate.

___The number of students stays the same during breakfast.

2. Describe the graph of the function between $x = 2$ $and$ $x = 4$.

        A. The graph is linear and increasing.

        B. The graph is linear and decreasing.

        C. The graph is nonlinear and increasing.

        D. The graph is nonlinear and decreasing.
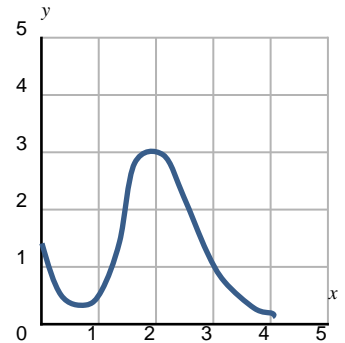
3. A PE class begins conditioning by walking. They stop for a short time. Then they run for a short time, and once again stop for a short time. Then they run at the same pace for the same amount of time. Then they walk at a very slow pace.

    Sketch a graph that represents the distance the PE class ran during the class period.