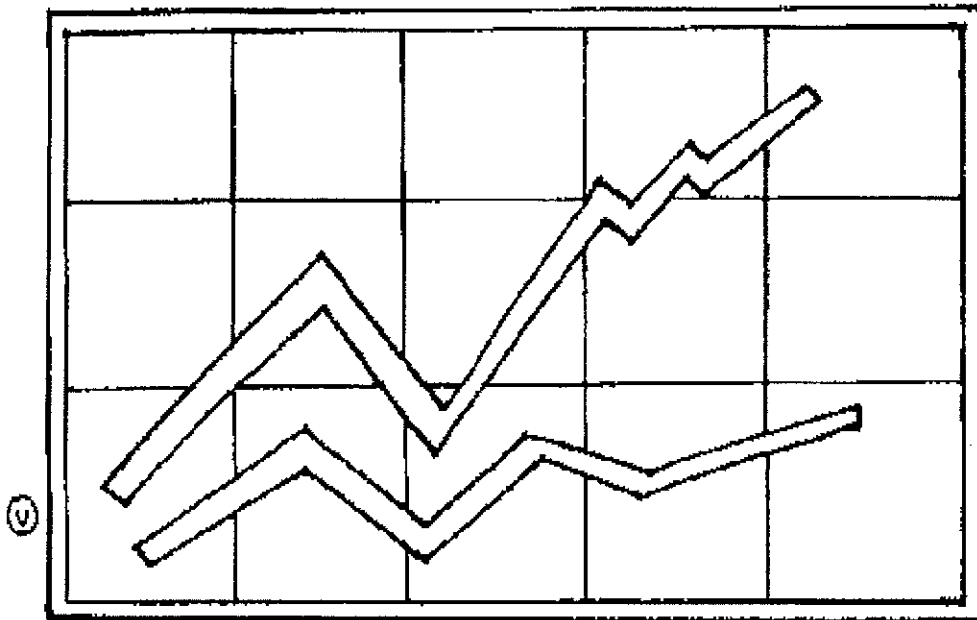
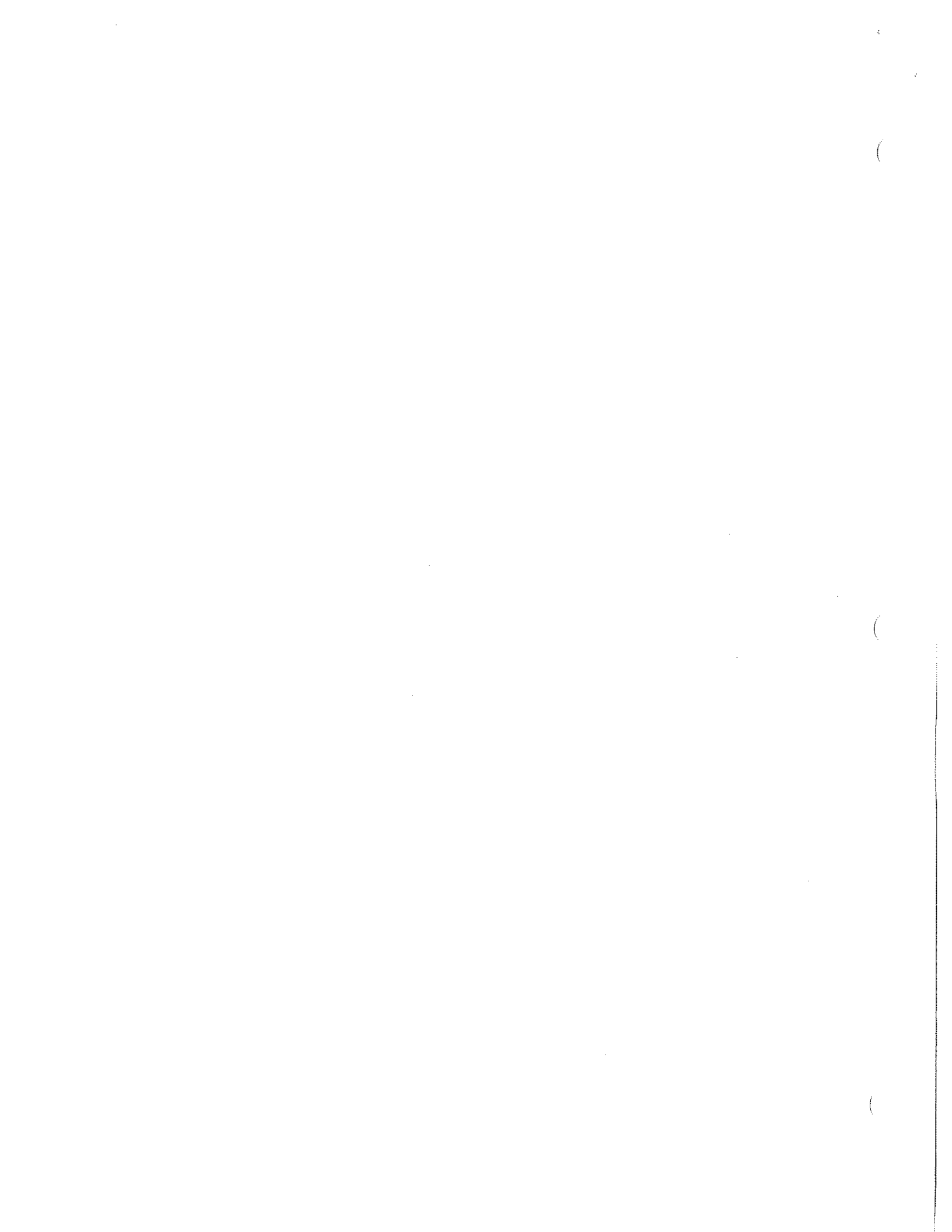


GRAPHING AND FUNCTIONS

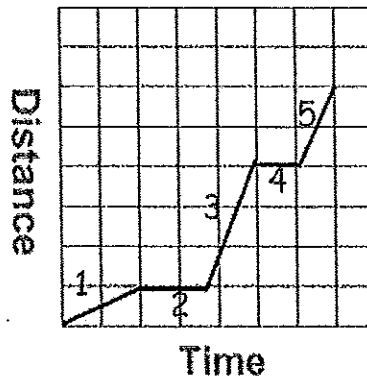


EQ: How does algebra help us model/explain our world?



- Sometimes, you will be asked to write a possible situation based on a given graph:

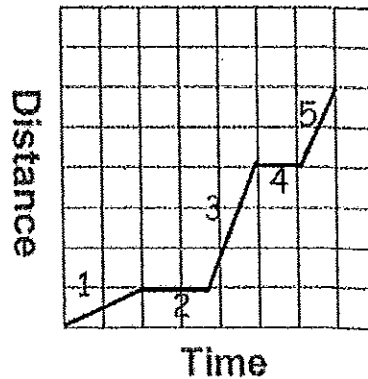
Jake is going to school. He walks and takes two buses. Describe his trip based on the graph:



- Pay attention to the variables (what is on the axes) being graphed, in this case, it's _____ and _____

- Be able to answer questions from the graph:

Did he have to wait longer for the first bus or the second? How can you tell?



Which bus trip was longer, the first bus trip or the second? How can you tell?

• This graph relates to the amount of study time and actual test scores. Match the scenario with the point on the graph.

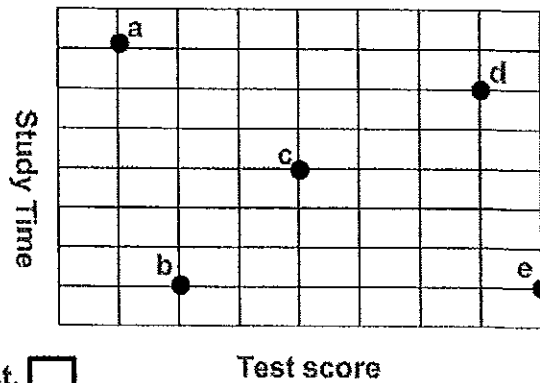
1. Joanna didn't study but did fine on her test.

2. William studied a long time but did poorly on his test.

3. Alfredo studied some and passed the test.

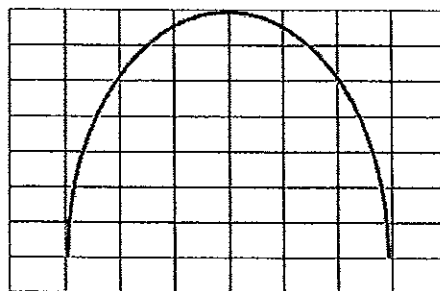
4. Ingrid studied hard and did well on the test.

Make your own scenario for the fifth point.



This graph could be used to show:

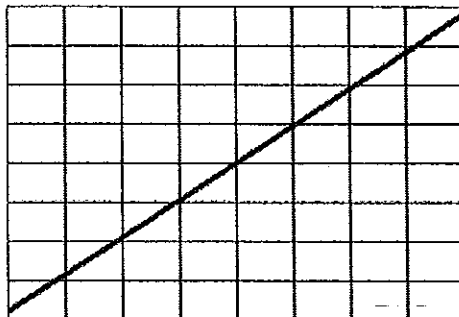
- A) Height and Age
- B) The amount of sugar used and cookies baked
- C) Daylight and the time of year
- D) The amount of water in a bathtub before, during and after a bath.



Answer: _____

This graph could be used to show:

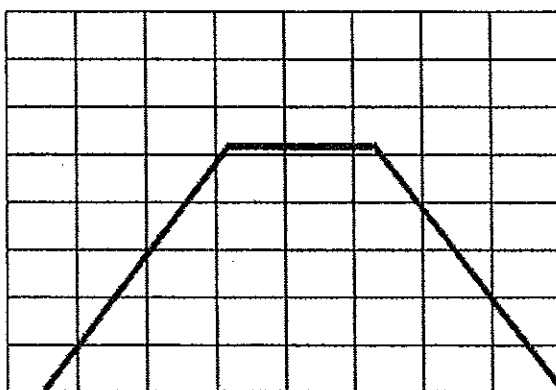
- A) Height and Age
- B) The amount of sugar used and cookies baked
- C) Daylight and the time of year
- D) The amount of water in a bathtub before, during and after a bath.



Answer:

This graph could be used to show:

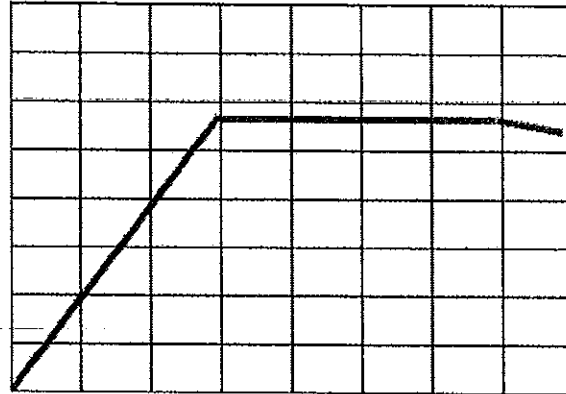
- A) Height and Age
- B) The amount of sugar used and cookies baked
- C) Daylight and the time of year
- D) The amount of water in a bathtub before, during and after a bath.



Answer:

This graph could be used to show:

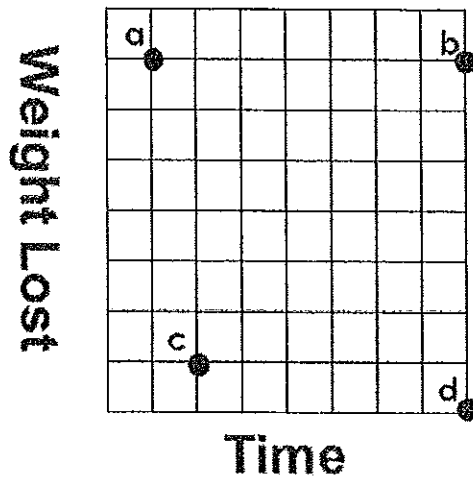
- A) Height and Age
- B) The amount of sugar used and cookies baked
- C) Daylight and the time of year
- D) The amount of water in a bathtub before, during and after a bath.



Answer:

Which point shows no weight loss over time?

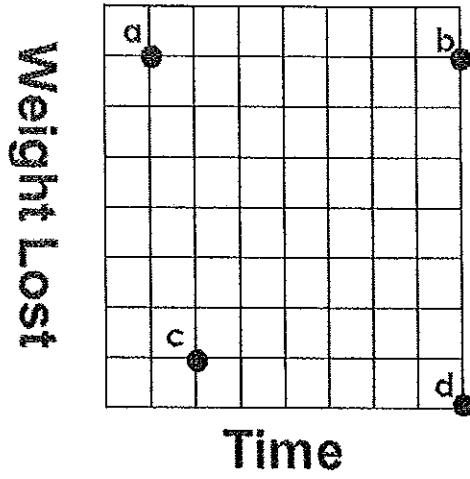
- A
- B
- C
- D



Answer:

Which point shows a lot of weight loss over a longer period of time?

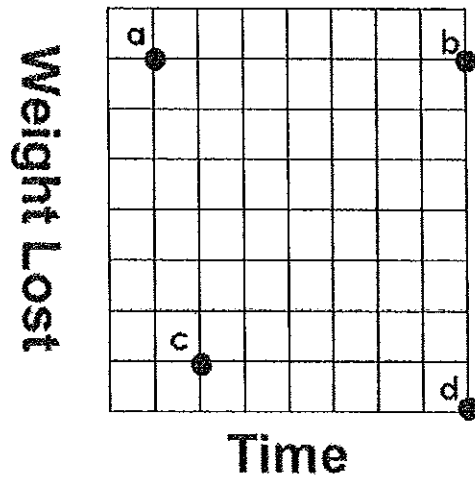
- A
- B
- C
- D



Answer:

Which point shows a lot of weight loss over a short period of time?

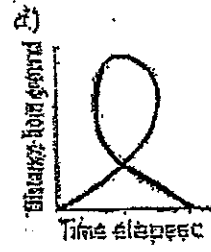
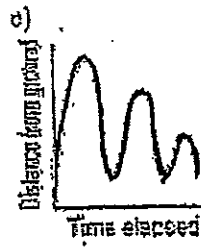
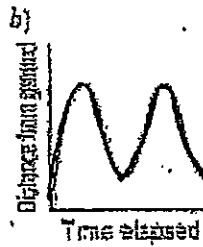
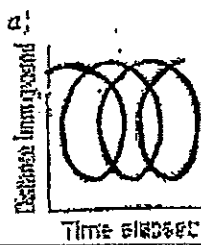
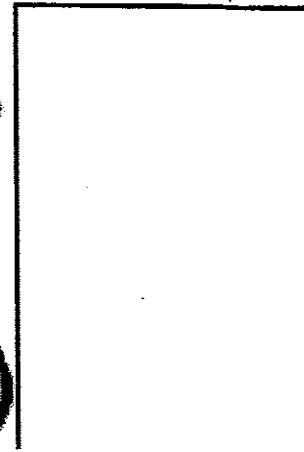
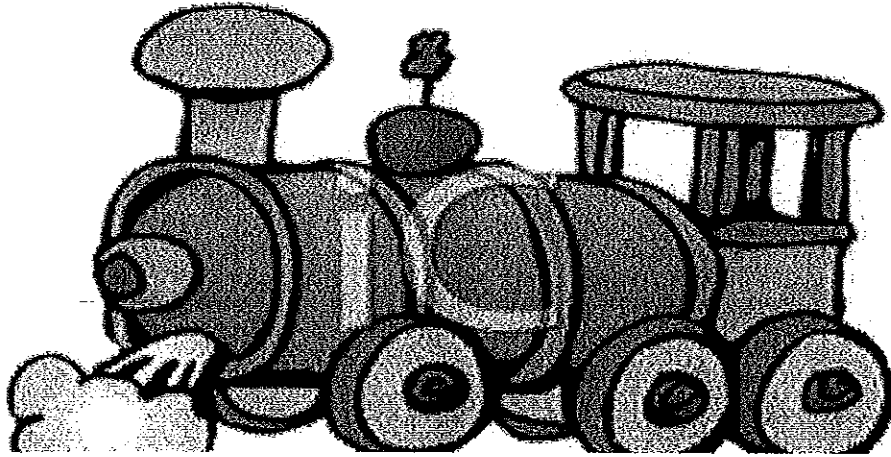
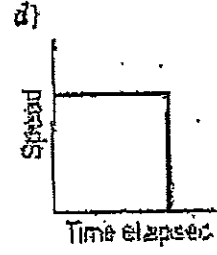
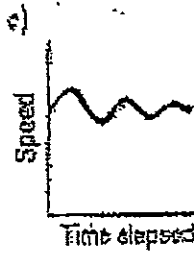
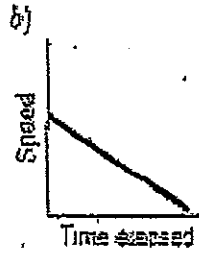
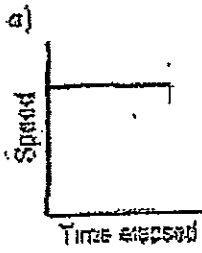
- A
- B
- C
- D

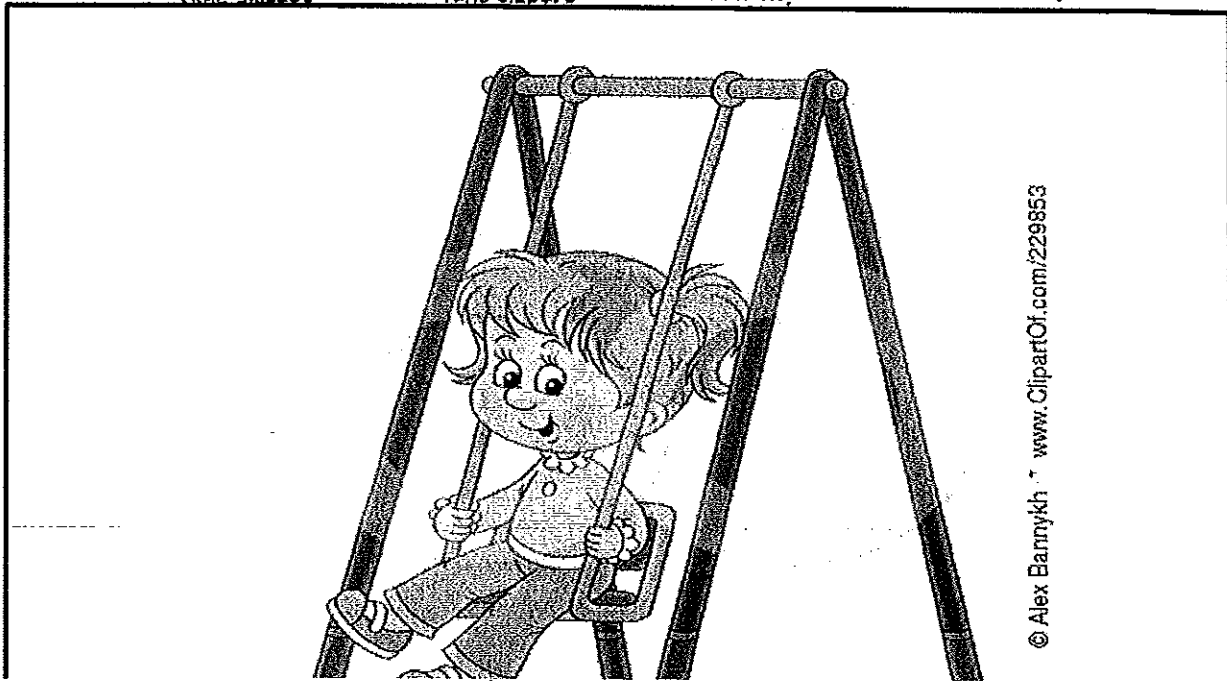
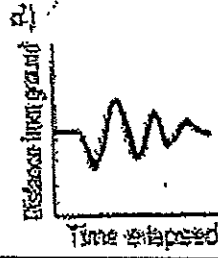
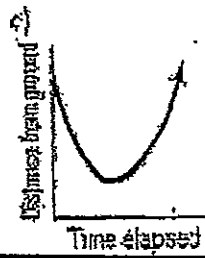
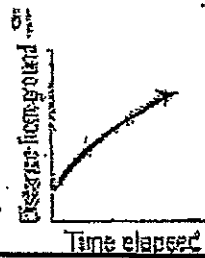
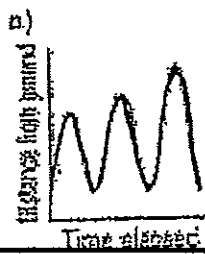


Answer:

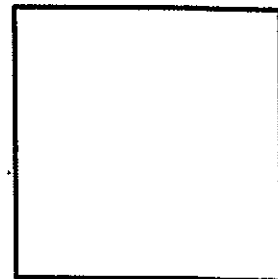
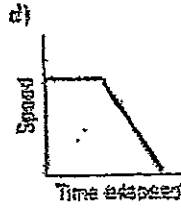
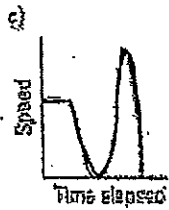
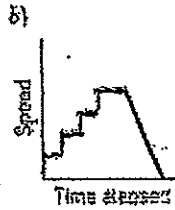
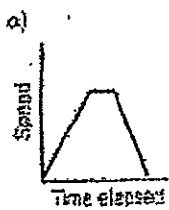
Match the correct graph to each statement.

1. A train pulls into a station and lets off its passengers.





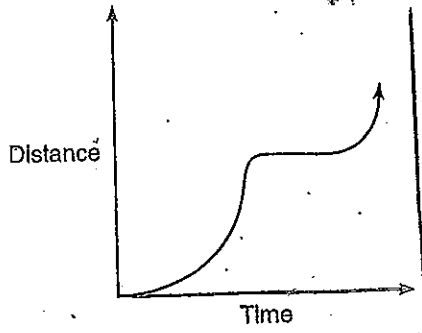
5. A child climbs up a slide and then slides down.



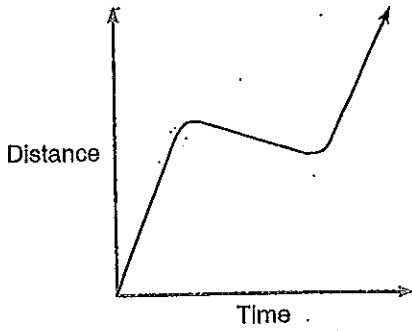
Once Upon a Time.....

Each graph below shows the distance an object moves over a certain time period. Interpret each graph and create a story for each that explains the movement of the object.

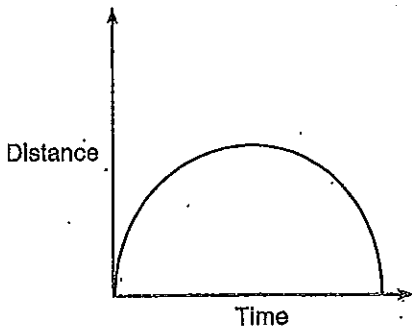
A.



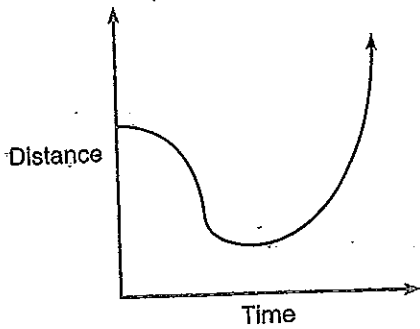
B.



C.

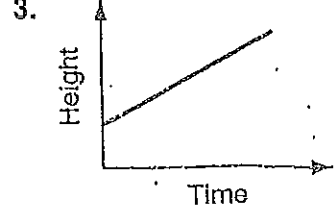
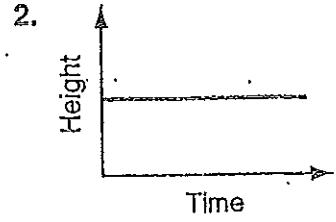
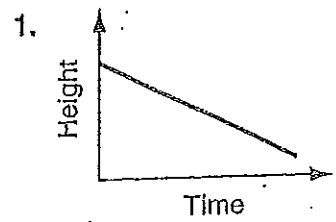


D.

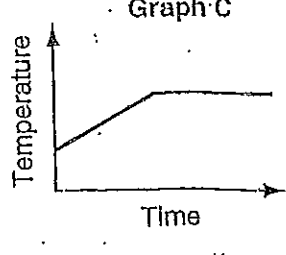
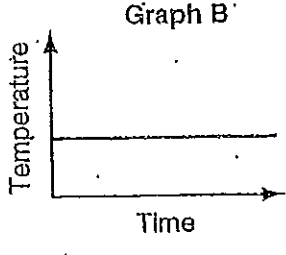
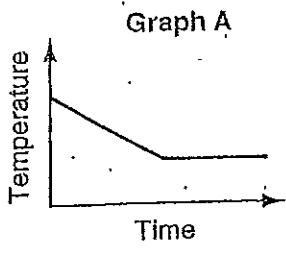


LESSON 4.5 Practice A
Graphing Relationships

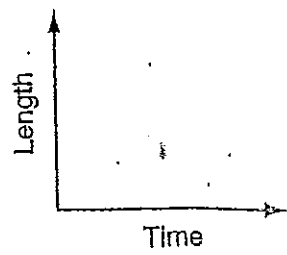
For each, write if the height is *rising*, *falling*, or *staying the same*.



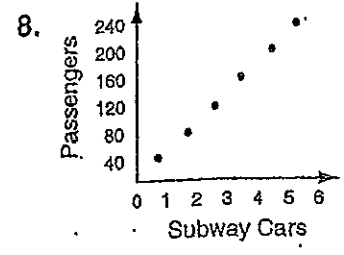
Choose the graph that best represents each situation.



4. The temperature of the water in a glass remained constant. _____
5. The temperature of the water in a glass rose steadily for several hours until it reached room temperature, then remained constant. _____
6. The temperature of the water in a glass cooled down steadily with the addition of ice, then remained constant when all the ice had melted. _____
7. Don's hair grows steadily longer between haircuts. Sketch a graph to show the length of Don's hair between two haircuts. Is the graph continuous or discrete? _____



Write a possible situation for the graph.

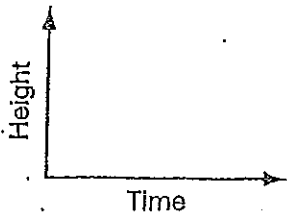


LESSON
4.1

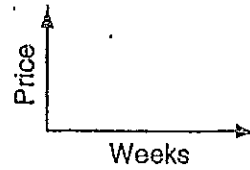
Problem Solving
Graphing Relationships

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

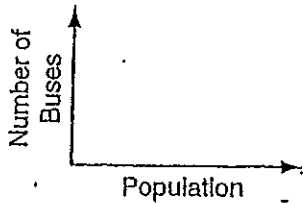
1. A giraffe is born 6 feet tall and continues to grow at a steady rate until it is fully grown.



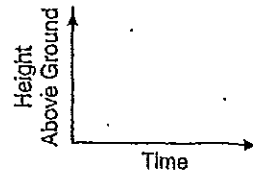
2. The price of a used car is discounted \$200 each week.



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



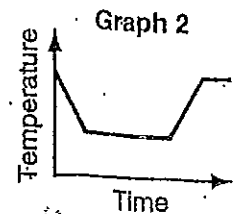
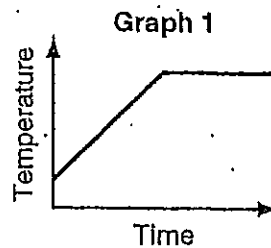
4. Joseph is sky-diving. At first, he is free-falling rapidly and then he releases his parachute to slow his descent until he reaches the ground.



Choose the graph that best represents the situation.

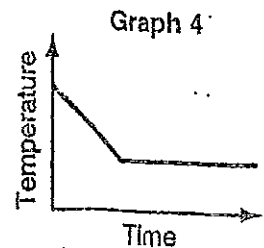
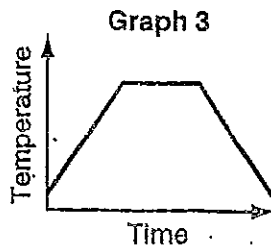
5. Rebekah turns on the oven and sets it to 300°F. She bakes a tray of cookies and then turns the oven off.

- A Graph 1 C Graph 3
B Graph 2 D Graph 4



6. Leon puts ice cubes in his soup to cool it down before eating it.

- F Graph 1 H Graph 3
G Graph 2 J Graph 4



7. Barlee has the flu and her temperature rises slowly until it reaches 101°F.

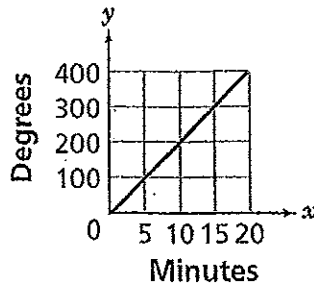
- A Graph 1 C Graph 3
B Graph 2 D Graph 4

8. On a hot day, Karin walks into and out of an air-conditioned building.

- F Graph 1 H Graph 3
G Graph 2 J Graph 4



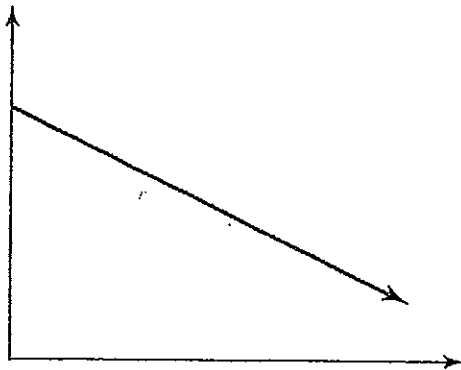
7 John drew the graph below to represent a situation.



Which statement could describe the situation John graphed?

- A The temperature of a frozen pizza cooking in an oven increases 5 degrees every minute.
- B The temperature of a frozen pizza cooking in an oven increases 10 degrees every minute.
- C The temperature of a frozen pizza cooking in an oven increases 15 degrees every minute.
- D The temperature of a frozen pizza cooking in an oven increases 20 degrees every minute.

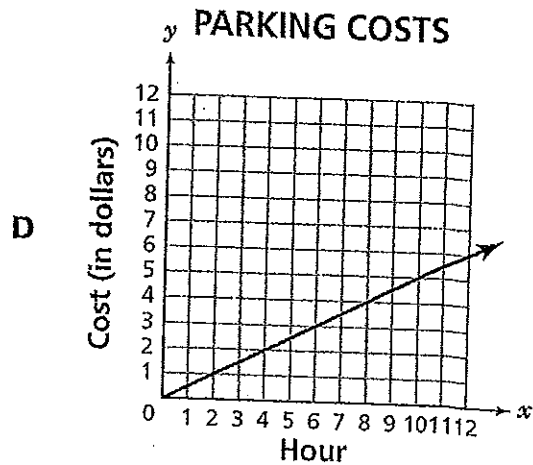
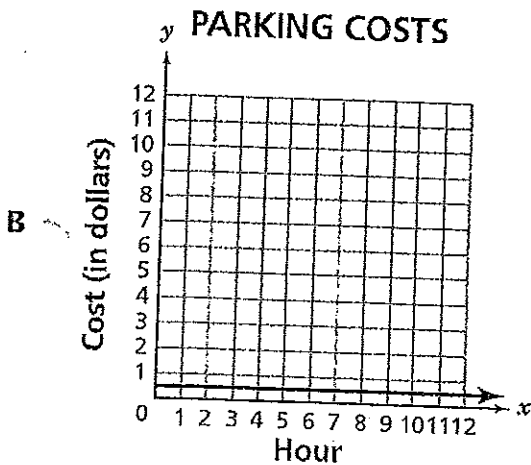
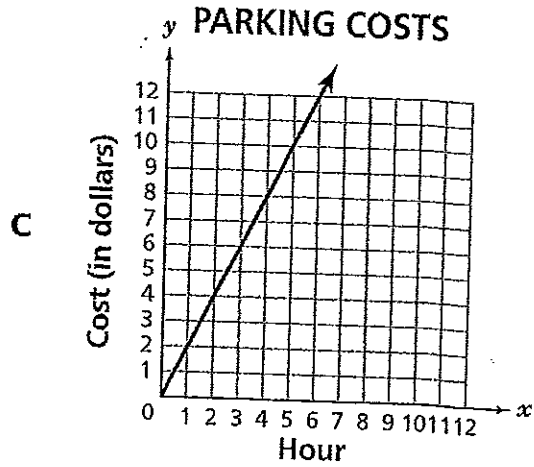
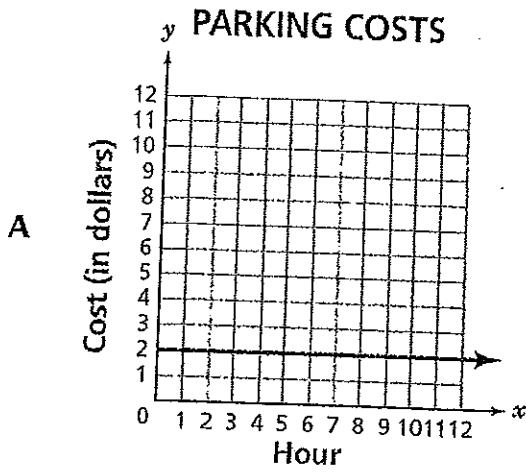
11 Which situation is best represented by the graph below?



- A the height of a child from age ten to fifteen
- B the volume of a balloon as it is being filled with air
- C the amount of gasoline in a car's tank during a five-hour trip
- D the volume of water in a swimming pool as it is being filled

~~Page 14~~

- 19 Alisa pays \$0.50 per hour to park her car at the museum. Which graph correctly shows the relationship between the hours, x , Alisa's car is parked and the total parking cost in dollars, y ?

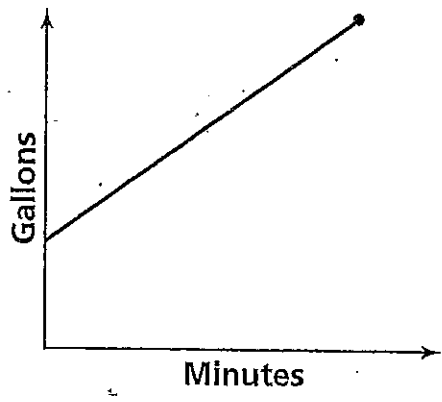


1000-100

15
1000-100

40

On the lines below, describe a situation that could be represented by the graph shown below.



On the lines below, explain the reason the graph does not pass through the origin in the situation you described.

Go On

16



Creating a graph when given a scenario



In order to create a graph, you need to decide two things:

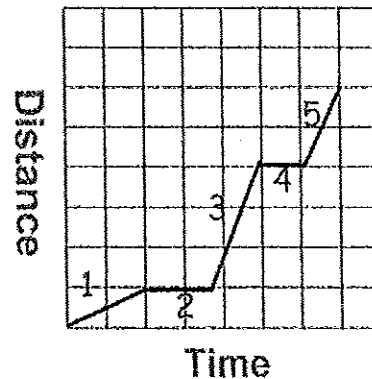
- ▣ what variables you have
- ▣ where on the graph they go

There are two types of variables:

- ▣ The _____ VARIABLE: goes on the _____. These are the variables that happen regardless of anything else.
- ▣ The _____ VARIABLE: goes on the _____. These are the variables which rely on other things (variables).

Remember Jake's bus trip?

Jake is going to school. He walks and takes two buses. Describe his trip based on the graph:



▣ The INDEPENDENT VARIABLE is _____. Why?

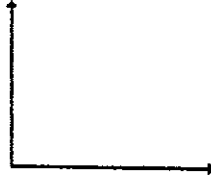
▣ The DEPENDENT VARIABLE is _____. Why?

✓ Notice that TIME is on the _____ and DISTANCE is on the _____.

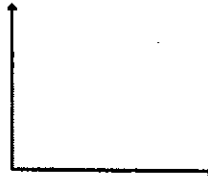
Try it out: label the graph with the dependent and independent variables for each situation:



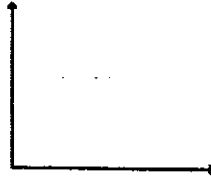
The cost of a vehicle and time



Distance from the movie theater and the time it takes to get there

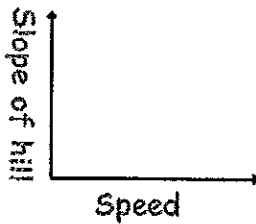


The amount of sleep you get each night and the energy you have in the morning

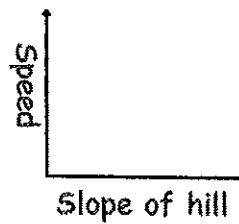


If you are graphing the speed of a ball rolling down the slope of a hill, which graph format should you choose?

A.



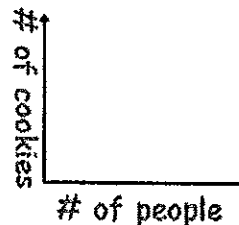
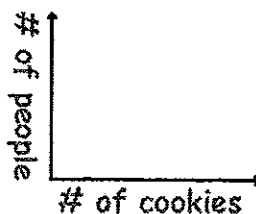
B.



In this case, _____ depends on _____,
so _____ is the independent variable.



In the case of the number of cookies needed for the number of people involved in a cookie swap, which graph should you choose?



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