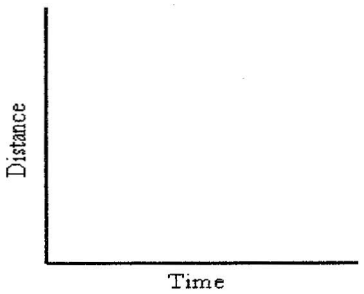
Name _____ Date _____ Period _____

Distance-Time Graphs

Describing the motion of an object is occasionally hard to do with words. Sometimes **graphs** help make motion easier to picture, and therefore understand.

Plotting distance against time can tell you a lot about motion. First, look at the axes:



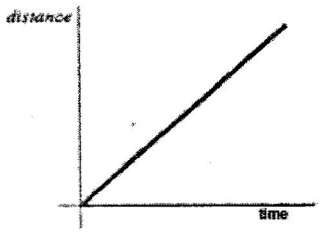
Time is always plotted on the X-axis (bottom of the graph). The further to the right on the axis, the longer the time from the start.

Distance is plotted on the Y-axis (side of the graph). The higher up the graph, the further from the start.

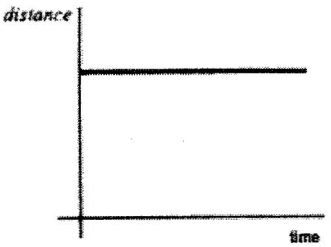
Match each of the following:

A. the car is stopped
B. the car is traveling at constant speed
C. the speed of the car is decreasing

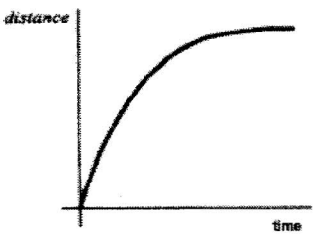
1.



2.



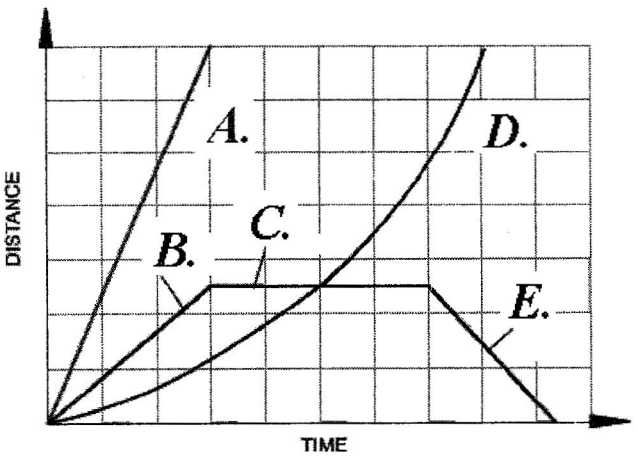
3.



1. Graph 1 matches description _____ because _____

2. Graph 2 matches description _____ because _____

3. Graph 3 matches description _____ because _____



Match the part of the graph to the description:

4. Stationary: _____
5. Increasing speed: _____
6. Slow & constant speed: _____
7. Fast & constant speed: _____
8. Returning to start: _____

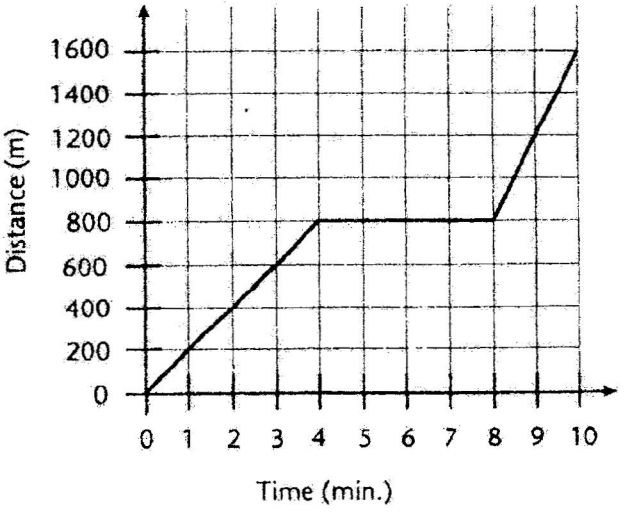
Summary:

- The steeper the graph, the faster the motion.
- A horizontal line means the object is not moving. It is stationary.
- A curved line means the speed is changing by speeding up or slowing down.

Distance-Time Graphs

Use the following paragraph and graph to answer questions 1 through 6.

On Saturday, Erin rode her bicycle to visit Caroline. Caroline's house is directly east of Erin's. The graph shows how far Erin was from her house after each minute of her trip.



1. Erin rode at a constant speed for the first 4 minutes of her trip. What was her constant speed?

_____

_____

2. What was Erin's *average speed* for the entire trip?

_____

_____

3. What was her average *velocity* for the entire trip?

_____

4. Erin stopped to talk to with another friend during her trip. How far was she from her house when she stopped?

_____

5. What is the slope of the line after Erin stopped to talk with her friend?

_____

6. How is the slope of the line related to her speed?

_____

Vocabulary Practice

7. An object is in _____ when its distance from a(n) _____ is changing.

8. Speed in a given direction is _____.

9. _____ can be calculated if you know the distance an object travels in one unit of time.