Graphing Motion Problems

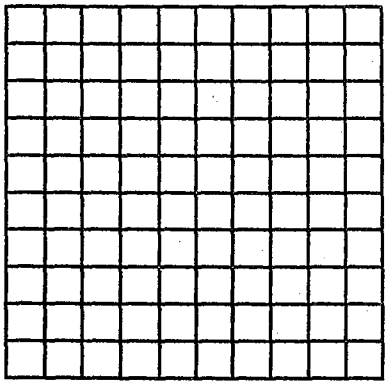
Name _____ Class _____ Date _____

Directions: Follow the specific directions under each question and graph it in the appropriate graph. Make sure that you label each axis and include a unit. Be careful when developing numbered scales on each axis.

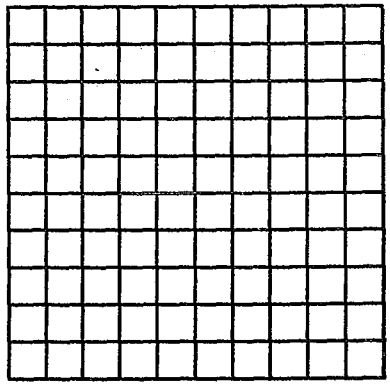
1. Draw a graph of a car going a constant speed of 50 miles/hr for 10 minute.

2. Draw a graph of a car accelerating from 0 to 60 miles/hr in 10 minutes.

Graph 1



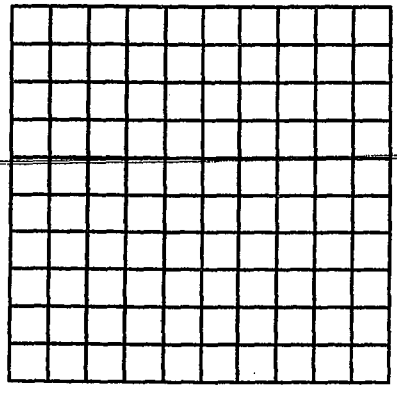
Graph 2



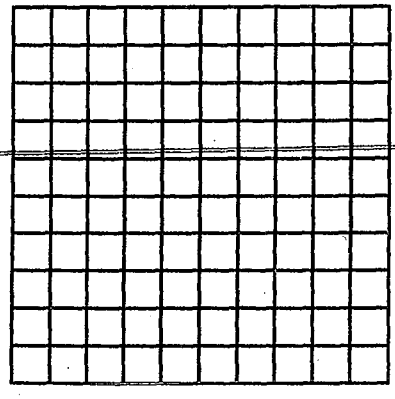
3. Draw a graph of a car decelerating from 40 to 10 miles/hr in 10 minutes.

4. A car is at a stop sign.
   The car increases velocity to 30 miles/hr in 1 minute.
   The car travels 30 miles/hr for 2 minutes.
   The car increases velocity to 60 miles/hr in 2 minutes.
   The car travels at 60 miles/hr for 4 minutes.
   Finally the car comes to a stop 1 minute later.
   Draw a graph of this car's journey. Total trip time = 10 minutes.

Graph 3



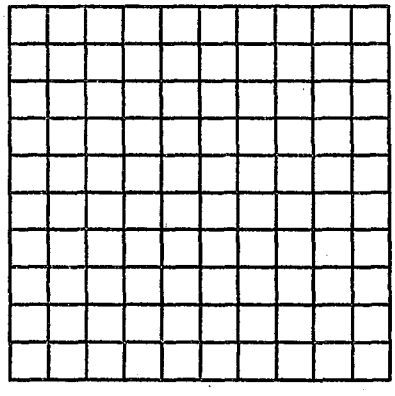
Graph 4



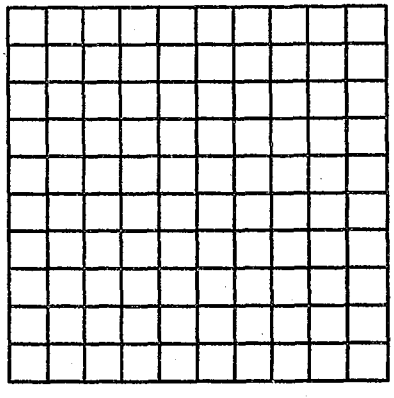
5. A truck is stopped.
   The truck accelerates to 20 miles/hr in 1 minute.
   The truck accelerates to 40 miles/hr in another minute.
   The truck travels at 40 miles/hr for 3 minutes.
   The truck accelerates to 60 miles/hr for 1 minute.
   The truck quickly slows down to 10 miles/hr in 1 minute for a school zone.
   The truck accelerates to 30 miles/hr during the next 2 minutes.
   The truck comes to a stop 1 minute later.
   Draw a graph of this truck's journey. Total trip time = 10 minutes.

6. A blue GTO travels for 4 minutes at 85 miles/hr on the turnpike.
   The GTO slows quickly to 55 miles/hr in 1 minute to pass a State Trooper.
   The GTO travels at 55 miles/hr for 2 minutes.
   The GTO accelerates to 90 mile/hr for 1 minute.
   The GTO maintains the 90 miles/hr for another minute.
   The GTO decelerates to 35 miles/hr for 1 minute to get off at the next exit ramp.
   Graph the journey of the GTO. Total trip time = 10 minutes.

Graph 5



Graph 6



7. Return to each of the 6 graphs.
   a. Label all segments going constant speed with a "1".
   b. Label all segments of acceleration with a "2".
   c. Label all segments of deceleration with a "3".
   d. Circle all parts of the graphs where the vehicle is stopped.

8. What does acceleration look like on a speed vs. time graph?

9. What does deceleration look like on a speed vs. time graph?

10. What does the slope of a speed vs. time graph indicate?