Physics

Name_____

Date_____Period____#_____

Ingrum 11/96

Topic 4 Review Worksheet

1. Identify the following.

_____ a. the slope of a position-time graph

_____ b. the slope of a velocity-time graph

_____ c. the area under an acceleration-time graph

_____ d. the area under a velocity-time graph

2. A motorboat travels straight down a river at 40.0 m/s.

a. Construct a table showing the total position of the boat at the end of each second for 10.0 seconds.

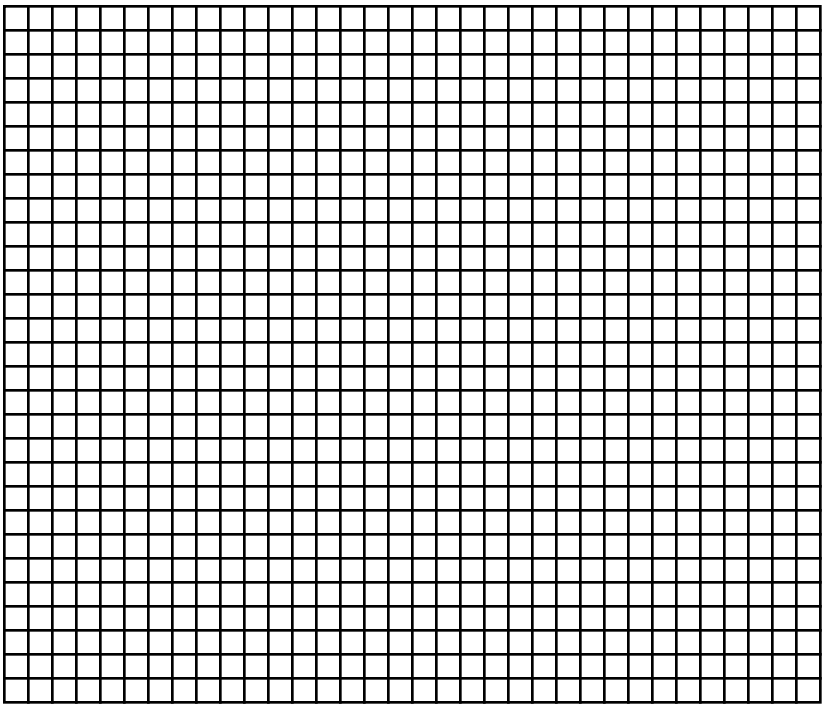
b. Use the data from the table to plot a position-time graph.

c. Show that the slope of the line is equal to the velocity.

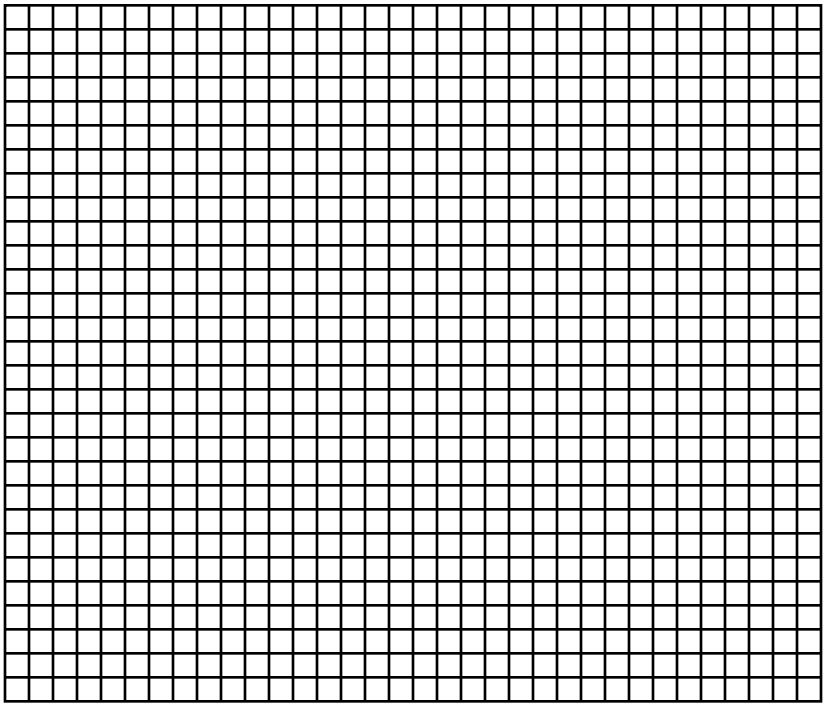
d. Plot a velocity-time graph of the boat's motion for the first 10 seconds.

e. Find the displacement between the 5th and 10th seconds.

Time	Position

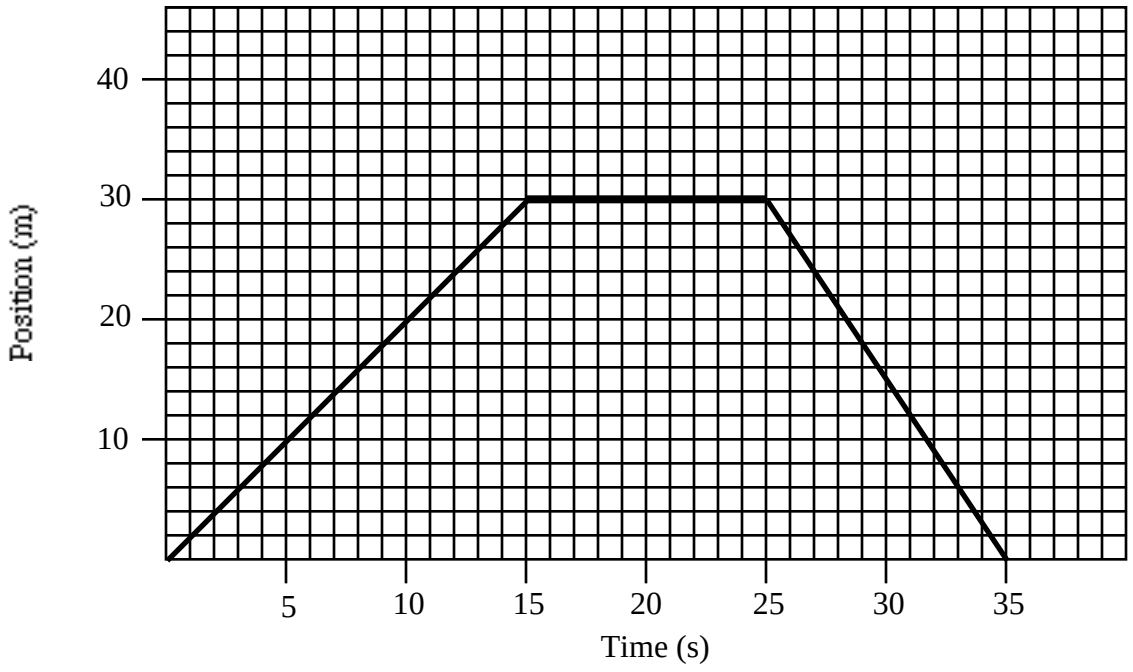


time	velocity



_____ Displacement between the 5th and 10th seconds.

3.



_____ a. How far does the object travel between 5 and 10 seconds?

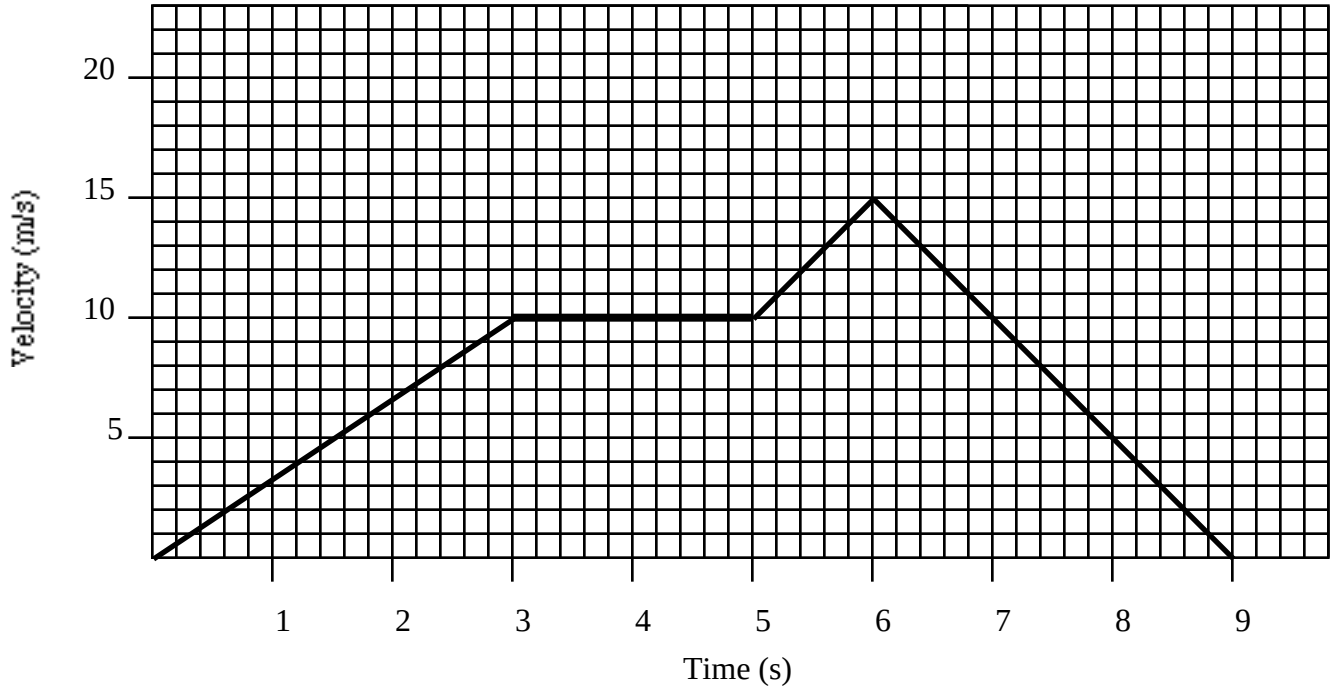
_____ b. How far does the object travel between 15 and 20 seconds?

_____ c. During what time interval is the velocity zero?

_____ d. What is the velocity between 10 and 15 seconds?

_____ e. Is the object accelerating during this trip?

4.



_____ a. Is the acceleration greater between 2 and 3 seconds or between 5 and 6 seconds?

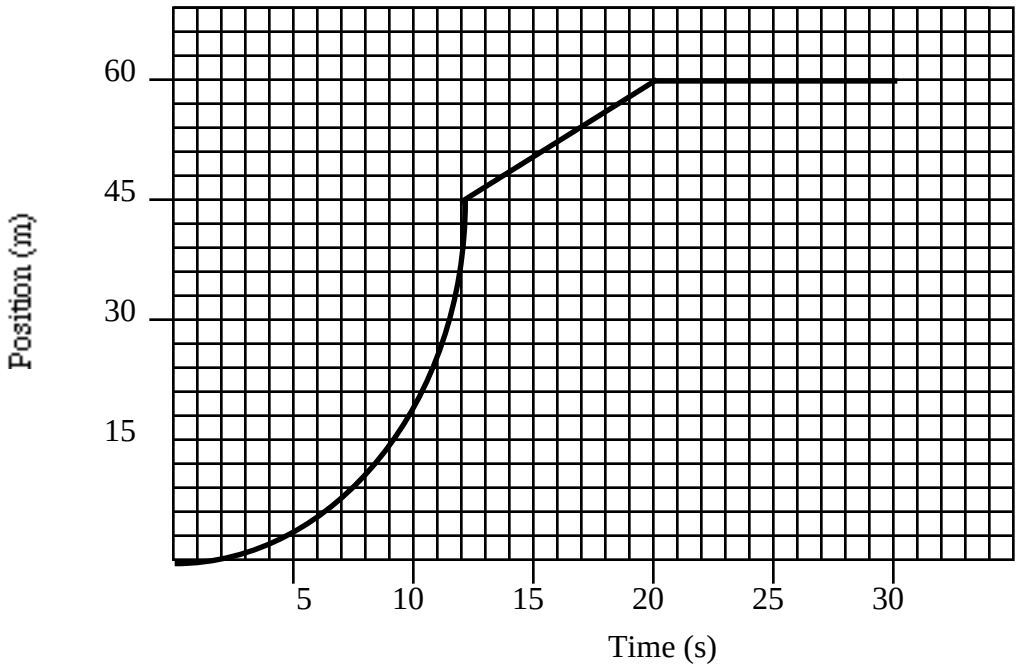
_____ b. During what time interval is the acceleration zero?

_____ c. What is the displacement between 5 and 6 seconds?

_____ d. What is the acceleration between 6 and 8 seconds?

_____ e. What is the displacement between 3 and 4 seconds?

5.



_____ a. What is the velocity between 20 and 25 seconds?

_____ b. Is the velocity greater between 0 and 5 seconds or between 10 and 12 seconds?

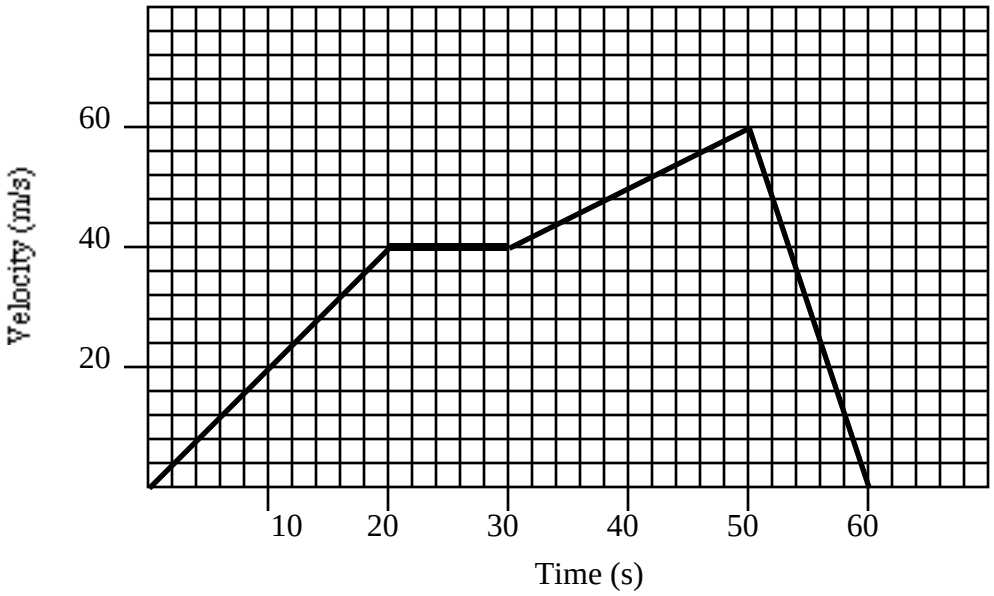
_____ c. What is the velocity between 15 and 20 seconds?

_____ d. What is the velocity at nine seconds?

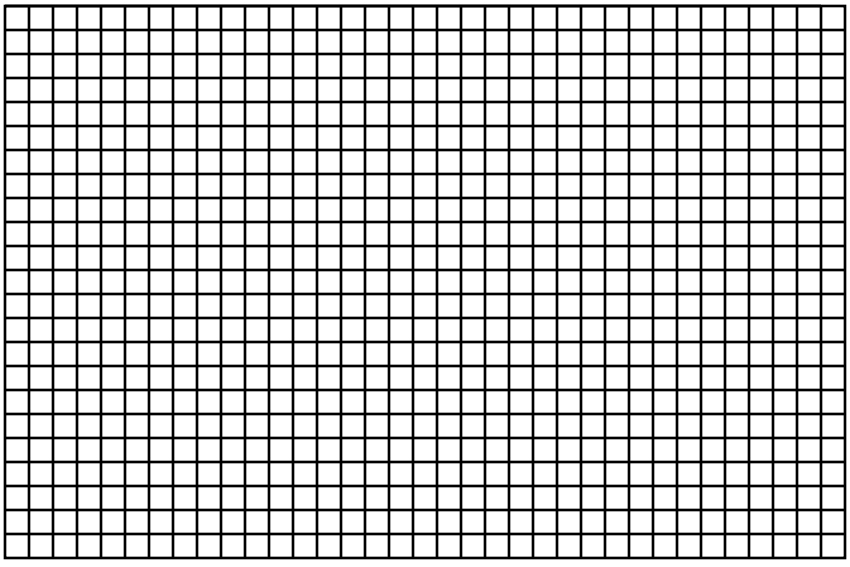
_____ e. During what time interval(s) does the object accelerate?

_____ f. What is the displacement between 15 and 20 seconds?

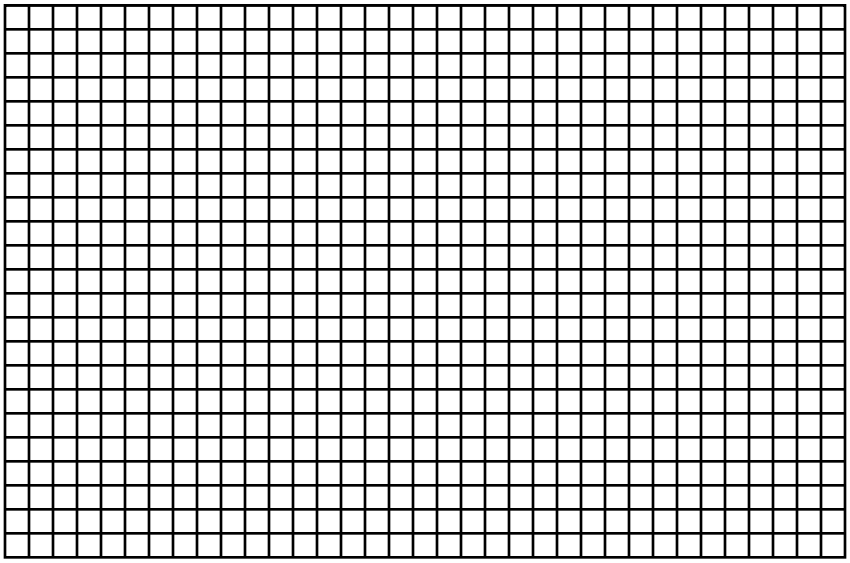
6. Sketch the position-time graph and the acceleration-time graph from the given velocity-time graph.



Time	Position



Time	Acceleration



7. Draw a velocity-time graph for a ball that has been thrown straight up into the air and returns to its original position. (Neglect air friction.)

8. A police car is stopped at a red light. As the light turns green, a diesel truck hurtles past in the next lane traveling at a constant speed of 28.0 m/s. If the police car, sirens blaring and lights flashing, accelerates at 4.0 m/s^2, how many seconds will it take it to catch the truck?

9. A student is running at her top constant speed of 4.0 m/s to catch a school bus parked at a bus stop. When she is just 10.0 meters away, the bus leaves the bus stop, accelerating at 1.0 m/s^2. Will the student catch the bus?