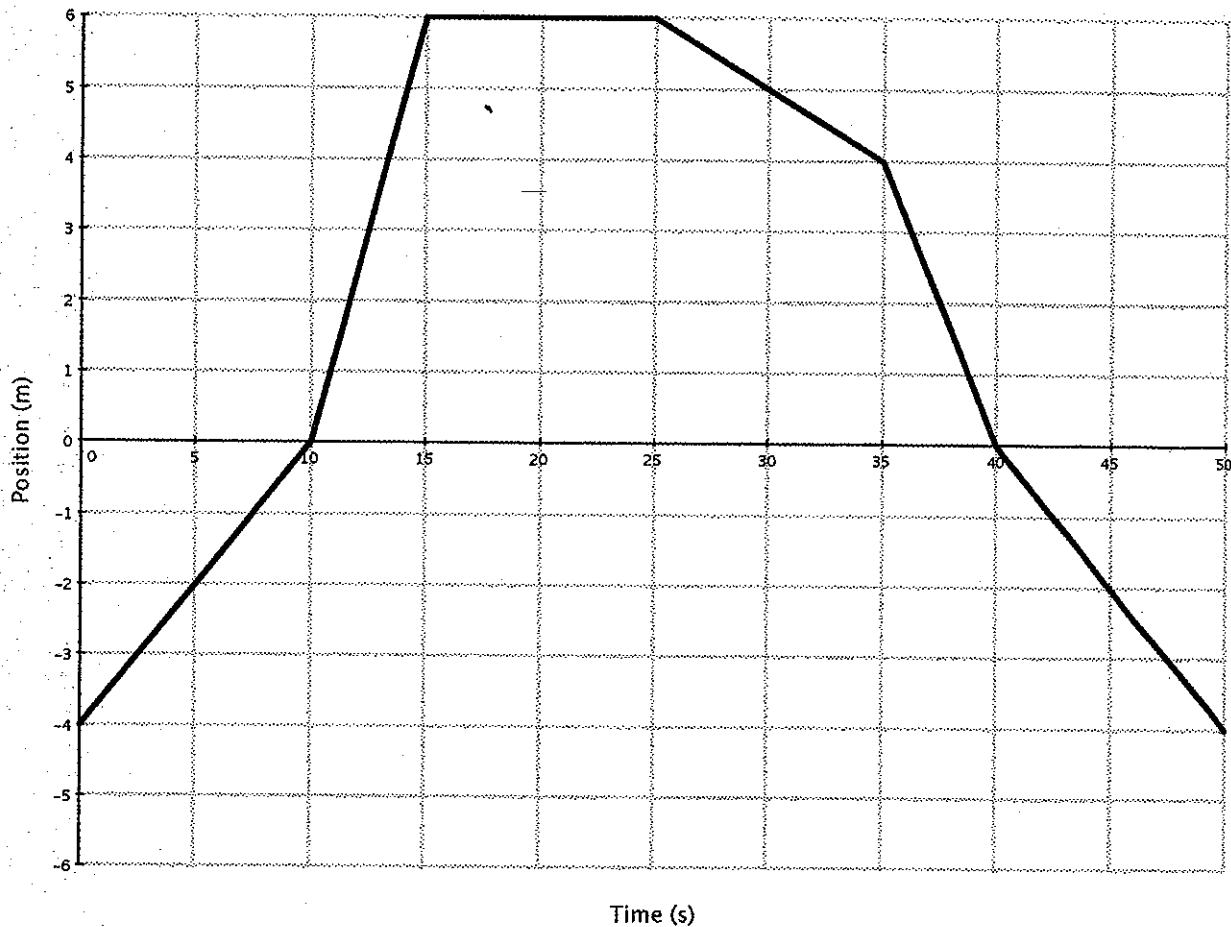


Key

Position-Time Graph Worksheet

The position-time graph below represents the motion of a remote-controlled toy truck as it moves back and forth along a straight line path. The origin marks the position of the boy who controls the truck. A positive position is to the right of the boy, and a negative position is to the left of the boy.



1. During which time intervals is the truck

a) to the right of the boy? 10 - 40 s

b) to the left of the boy? 0 - 10 s , 40 - 50 s

c) moving in the positive direction? 0 - 15 s

d) moving in the negative direction? 25 - 50 s

e) not moving? 15 - 25 s

2. What is the position of the truck at

a) 0 seconds? -4 m

c) 30 seconds? +5 m

b) 15 seconds? +6 m

d) 45 seconds? -2 m

3. How far did the truck travel during the following time intervals?

a) 0-10 s 4 m

d) 25-35 s 2 m

b) 10-15 s 6 m

e) 35-40 s 4 m

c) 15-25 s 0

f) 40-50 s 4 m

4. What was the displacement of the truck during the following intervals?

a) 0-10 s +4 m

d) 25-35 s -2 m

b) 10-15 s +6 m

e) 35-40 s -4 m

c) 15-25 s 0

f) 40-50 s -4 m

5. Average speed is given by the distance traveled divided by the time interval. Calculate the average speed for each interval.

a) 0-10 s 0.4 m/s

d) 25-35 s 0.2 m/s

b) 10-15 s 1.2 m/s

e) 35-40 s 0.8 m/s

c) 15-25 s 0

f) 40-50 s 0.4 m/s

6. Average velocity is given by the displacement of the truck divided by the time interval. It can also be determined by calculating the slope of the line segment on a position-time graph. Calculate the average velocity for each time interval by calculating the slope.

Run = Δt Time Interval	Rise = Δd Displacement	Slope = v Velocity
10 s	4 m	0.4 m/s
5 s	6 m	1.2 m/s
10 s	0 m	0
10 s	-2 m	-0.2 m/s
5 s	-4 m	-0.8 m/s
10 s	-4 m	-0.4 m/s

7. How do the signs of the velocities in #6 compare to the direction of motion in #1?

+ is right, - is left

8. In terms of the truck's motion,

- a) what does a negative velocity mean? moving left
- b) what does a positive velocity mean? moving right
- c) what does a velocity of zero mean? at rest