Name: Answer Key Period: _____ Date: _____

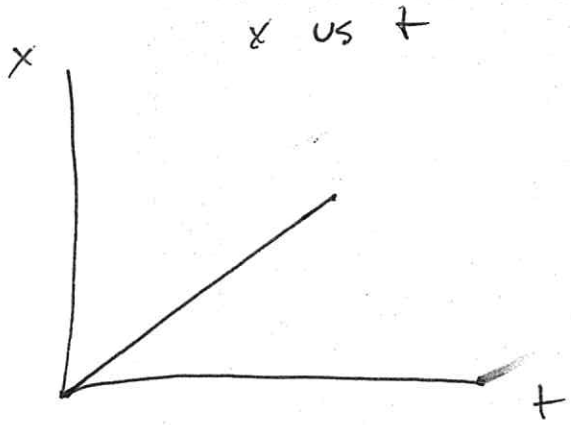
Standards: P.D.01 _____ P.D.02 _____ P.D.03 _____ P.D.04 _____ P.D.05 _____

.D.06 _____ P.D.07 _____ P.D.14 _____ P.D.15 _____ P.D.17 _____ P.D.19 _____

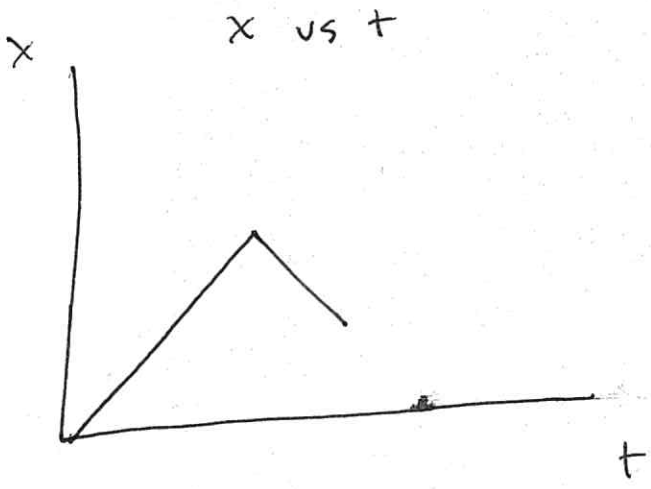
G.D.67 _____

Unit 1 Test

1. Draw a position vs. time graph where the distance and displacement are the same. P.D.01



2. Draw a position vs. time graph where the distance and displacement are **different**. P.D.01

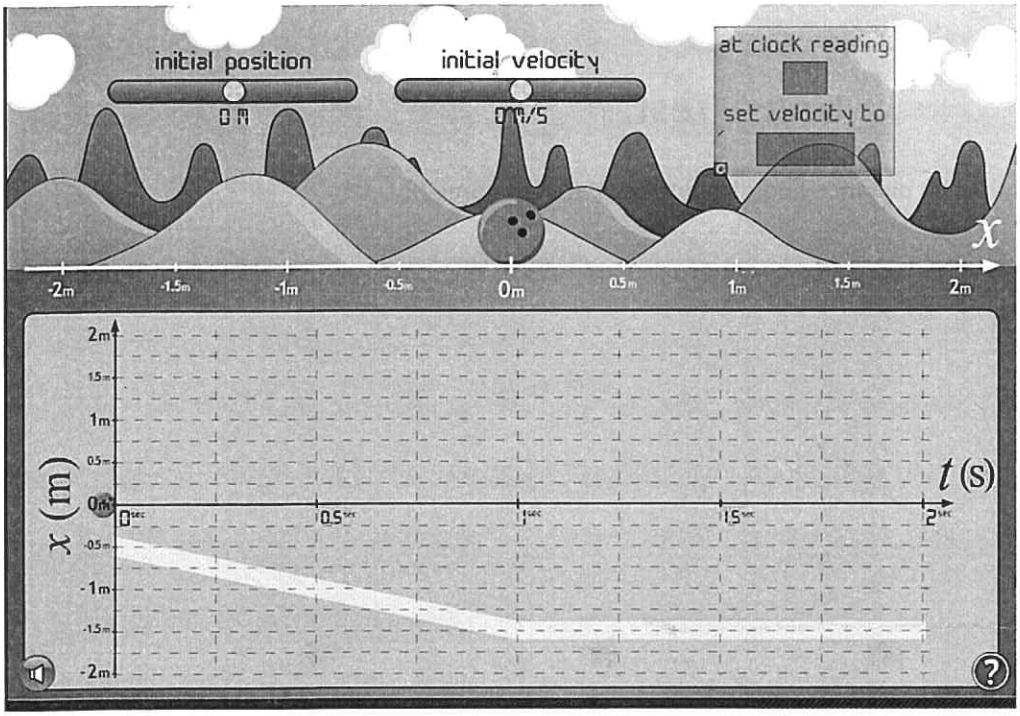


P.D.01	

3. What values will make the graph below work? Fill in the blanks. P.D.02

Initial Position: $-.5$ m At Clock Reading: 1 sec

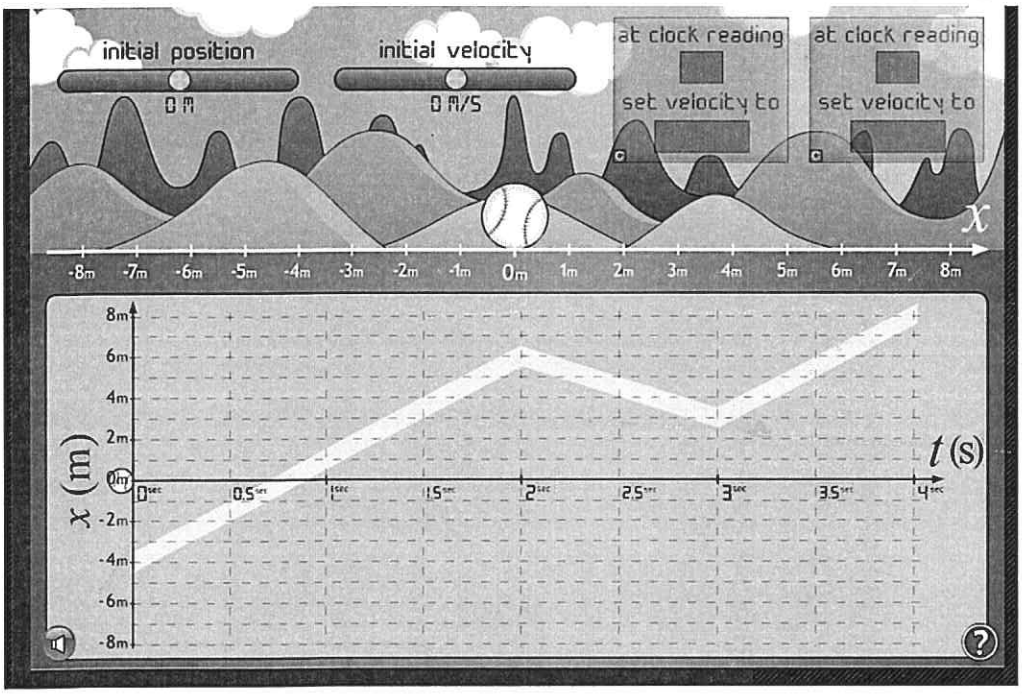
Initial Velocity: -1 m/s Set Velocity to: 0 m/s



4. What values will make the graph below work? Fill in the blanks. P.D.02

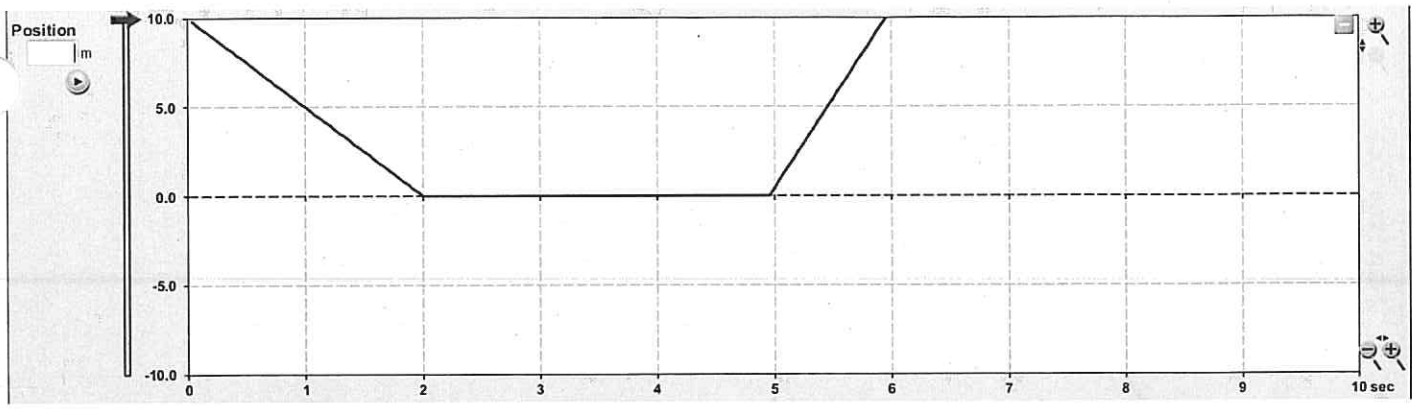
Initial Position: -4 m At Clock Reading: 2 sec At Clock Reading: 3 sec

Initial Velocity: 5 m/s Set Velocity to: -3 m/s Set Velocity to: 5 m/s

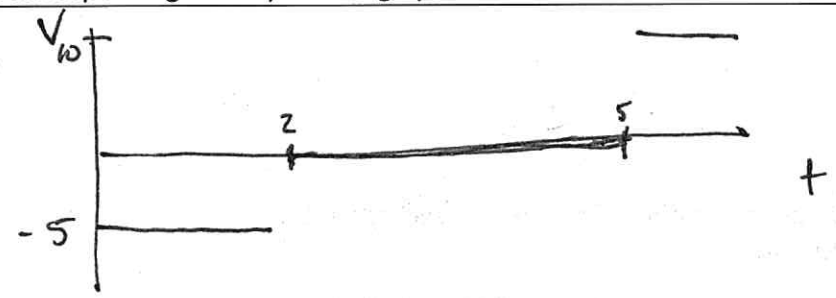


P.D.02	

5. For the position vs. time graph below: P.D.03



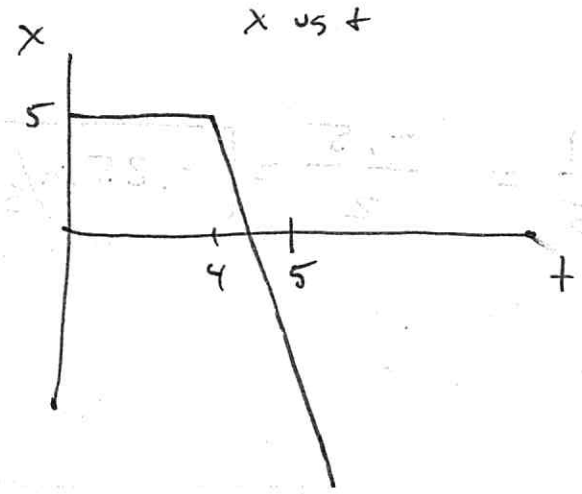
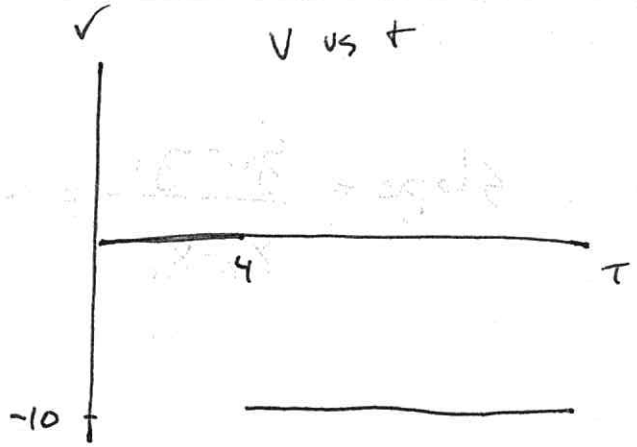
Draw the corresponding velocity vs time graph below.



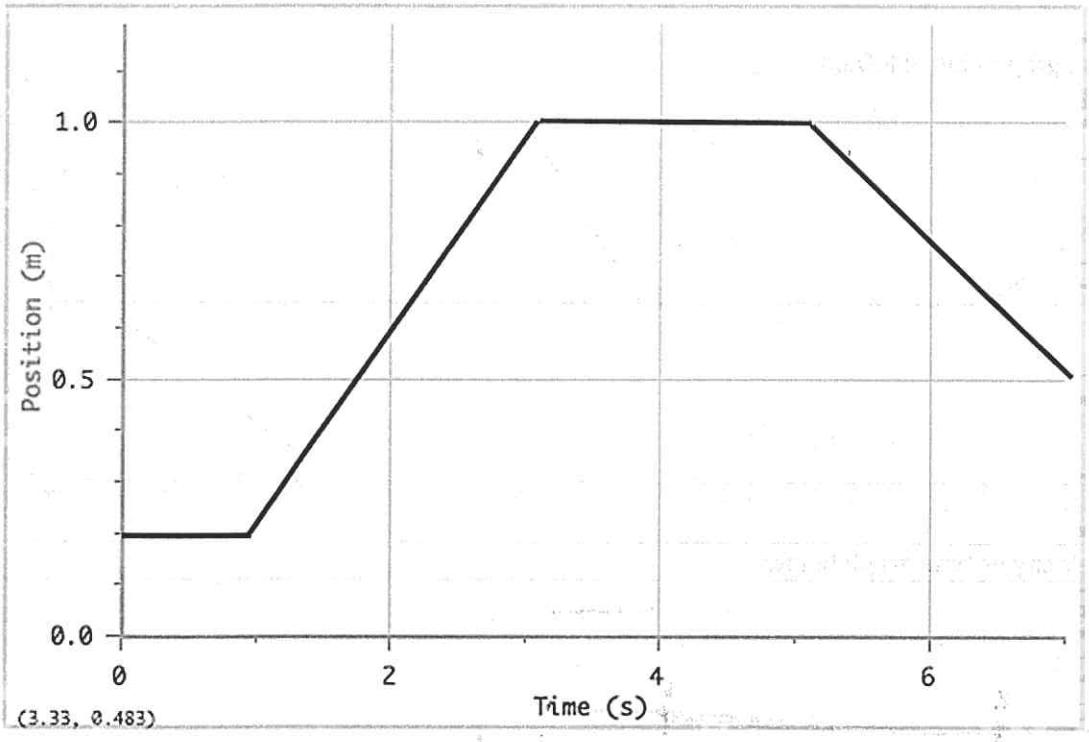
In words, describe the motion of the object.

- Starts at 10 m
- Go -5 m/s for 2 sec
- Stops for 3 sec
- Go 10 m/s for 1 sec

6. For following written description, draw the corresponding position vs. time and velocity vs. time graphs: P.D.03
An object stays at rest at the position of 5 meters for 4 seconds. It then travels with a velocity of -10 m/s for 15 seconds.

position vs. time	velocity vs. time
	

P.D.03	



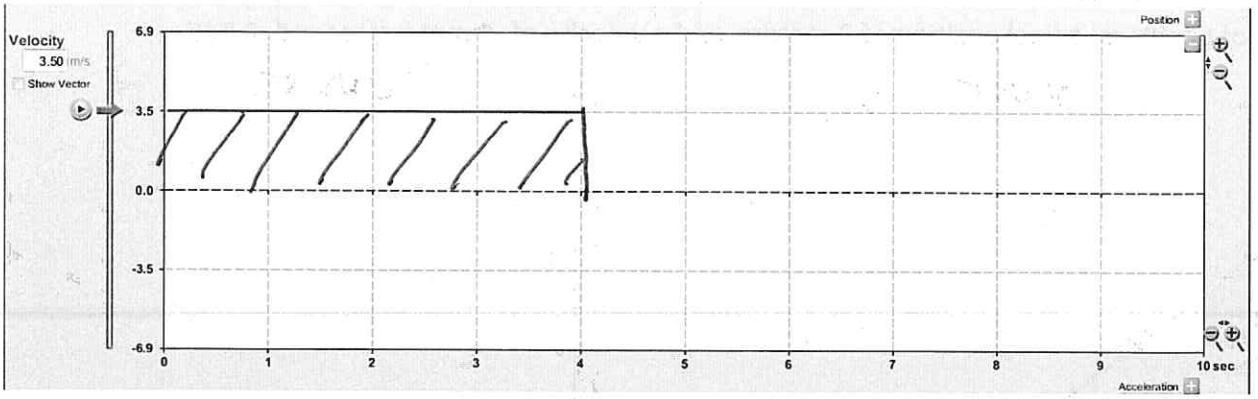
7. For the graph above, determine the velocity of the object between 1-3 seconds. P.D.04
SHOW ALL OF YOUR WORK FOR FULL CREDIT.

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - .2}{3 - 1} = \frac{.8}{2} = \boxed{.4\ m/s}$$

8. For the graph above, determine the velocity of the object between 5-7 seconds. P.D.04
SHOW ALL OF YOUR WORK FOR FULL CREDIT.

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{.5 - 1}{7 - 5} = \frac{-.5}{2} = \boxed{-.25\ m/s}$$

P.D.04	

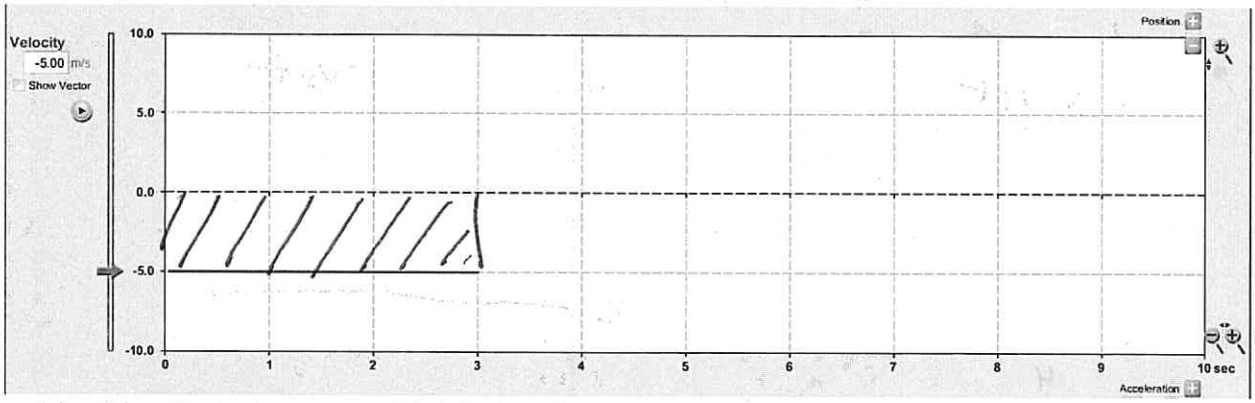


9. Based on the v vs t graph above, what is the final position of the moving man? P.D.05

$a = l \times w$

$= 4\text{sec} \times 3.5\text{m/s}$

$= 14\text{ m}$



10. Based on the v vs t graph above, what is the final position of the moving man? P.D.05

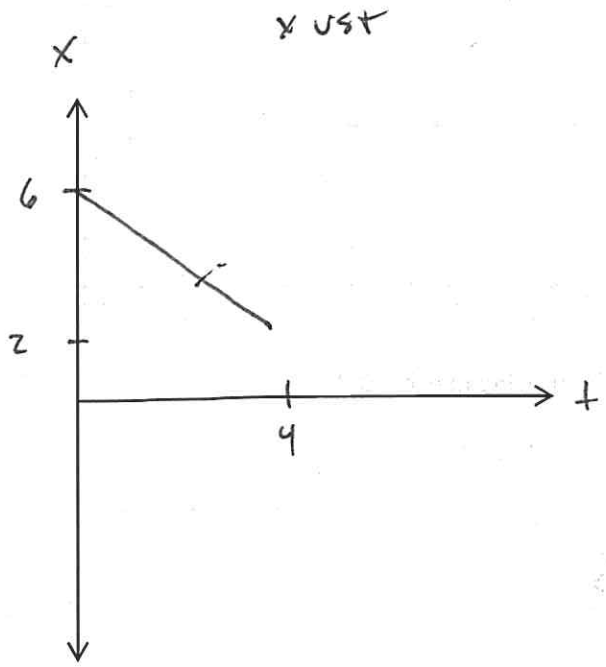
$a = l \times w$

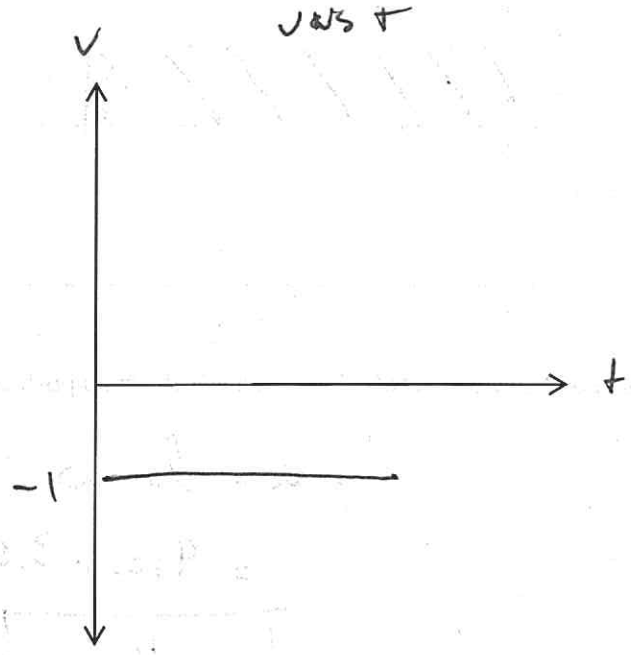
$= 3\text{sec} \times -5\text{ m/s}$

$= -15\text{ m}$

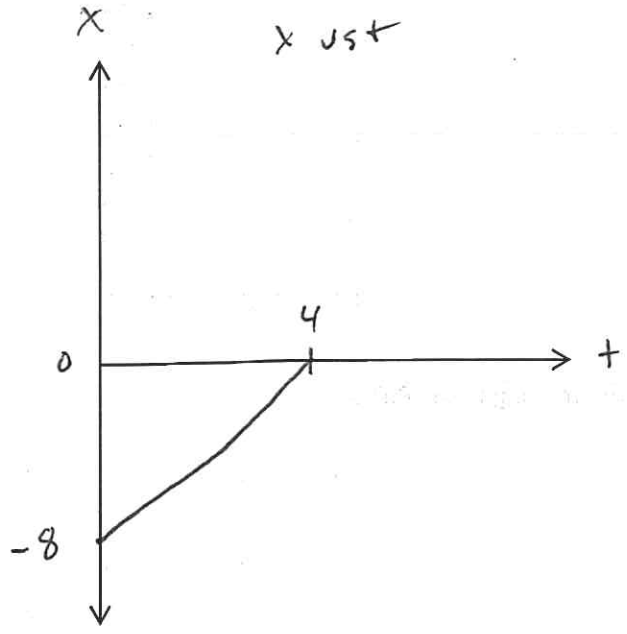
P.D.05	

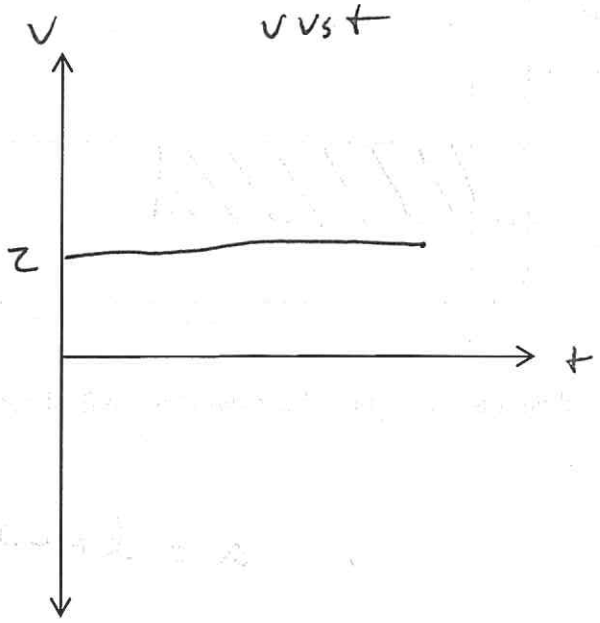
11. Create a x vs t (position vs time) graph and a v vs t (velocity vs time) graph for an object with an initial position of 6 meters, a final position of 2 meters, and a velocity of -1 meters/second. P.D.06





12. Create a x vs t (position vs time) graph and a v vs t (velocity vs time) graph for an object with an initial position of -8 meters, a final position of 0 meters, and a velocity of 2 meters/second. P.D.06





P.D.06	

13. A deer runs at a constant velocity of 5 m/s North. How far can the deer run in 15 seconds? Express your final answer in **centimeters**. Show all of your work for full credit. P.D.07, P.G.67

$V = 5\ m/s$ $\quad V = \frac{x_2 - x_1}{t}$ $\quad 5 = \frac{x_2 - 0}{15}$

$x_1 = 0\ m$

$x_2 = ?$

$t = 15\ sec$

$75\ m = x_2$ P.D.07

$\frac{75\ m}{1} \left| \frac{100\ cm}{1\ m} \right. = 7500\ cm$ P.G.67

14. A car travels 250 km South on a straight road for 10 hours. What is its velocity? Express your answer in **m/s**. Show all of your work for full credit. P.D.07, P.G.67

$V = ?$

$x_1 = 0\ km$

$x_2 = 250\ km$

$t = 10\ hr$

$V = \frac{x_2 - x_1}{t}$

$V = \frac{250 - 0}{10}$

$V = 25\ km/hr$ P.D.07

$\frac{25\ km/hr}{3.6} \left| \frac{1\ m/s}{} \right.$

$6.94\ m/s$ P.G.67

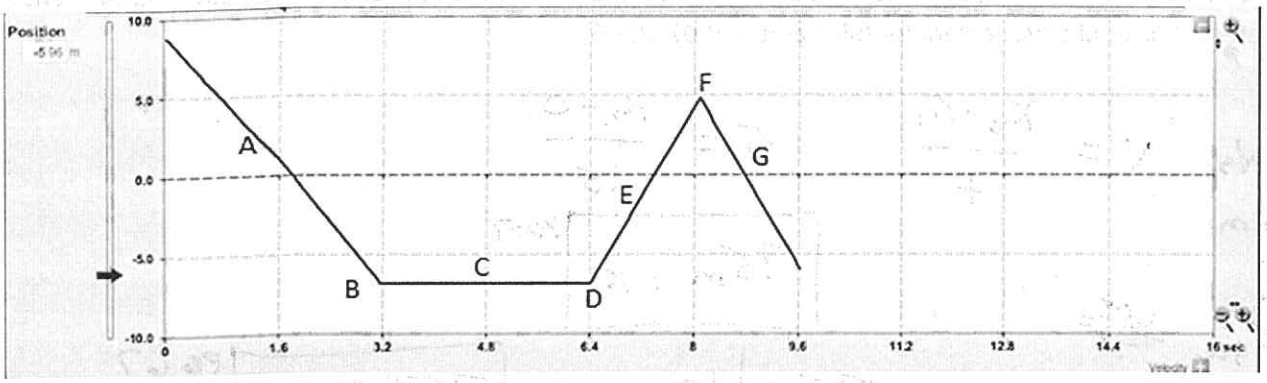
15. In your own words- describe what velocity is **and** give an example: P.D.14

- change in position over time
- speed w/ direction

16. In your own word- describe what acceleration is **and** give an example: P.D.14

- change in velocity over time.

P.D.07		P.G.67		P.D.14	



17. From the Position vs. Time graph above indicate where the velocity was constant or changing. P.D.15

A: constant

B: changing

C: constant

D: changing

E: constand

F: changing

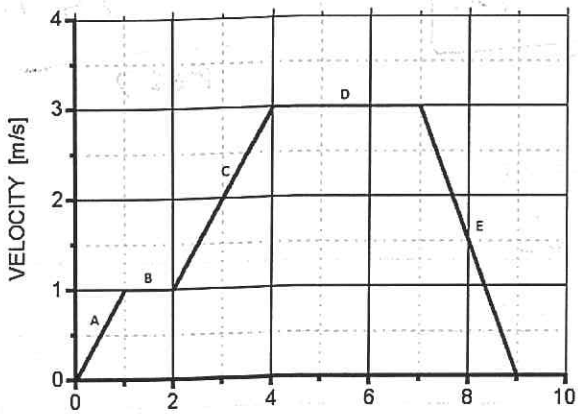
G: Constant

4 - 7/7

3 - 6/7

2 - 5/7 - 4/7

1 - 3/7



18. From the Velocity vs. Time graph above indicate where the acceleration was positive, negative, or zero. P.D.17

A: positive

B: Zero

C: positive

D: Zero

E: Negative

5/5 - 4

4/5 - 3

3/5 - 2

2/5 - 1

1/5

P.D.15	

P.D.17	

19. Jeremy is riding his bike down a straight road at 3 m/s when he accelerates at a constant rate for 5 seconds until he reaches a velocity of 6 m/s. What is his acceleration? Show all of your work for full credit. P.D.19

$x_1 = 0\ m$

$x_2 = ?$

$v_1 = 3\ m/s$

$v_2 = 6\ m/s$

$a = ?$

$t = 5\ sec$

$v_2 = v_1 + at$

$6 = 3 + a(5)$

$3 = 5a$

$.6\ m/s^2 = a$

20. A car moving at 18 m/s accelerates at $-2.5\ m/s^2$ as it approaches a stop sign. How long does it take the car to come to a complete stop? Show all of your work for full credit. P.D.19

$x_1 = 0\ m$

$x_2 = ?$

$v_1 = 18\ m/s$

$v_2 = 0\ m/s$

$a = -2.5\ m/s^2$

$t = ?$

$v_2 = v_1 + at$

$0 = 18 + (-2.5)t$

$-18 = -2.5t$

$7.2\ sec = t$

P.D.19