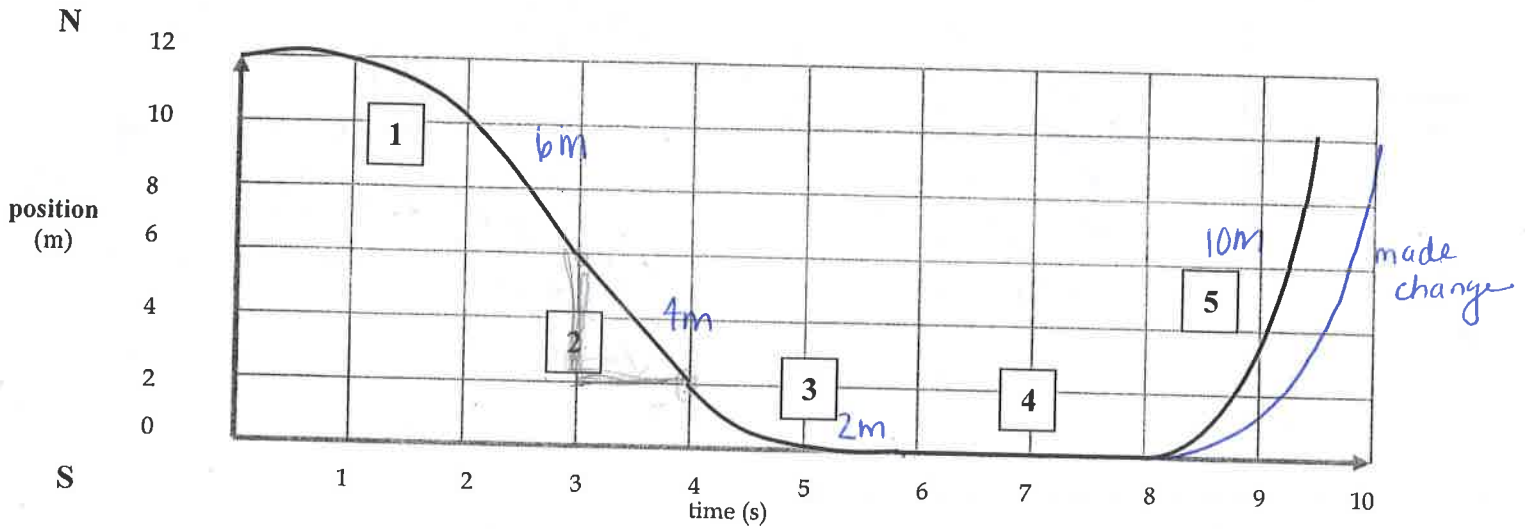


Physics
Practice with Graphs III – x-t, v-t and a-t

Name KEY
Date _____

Use the position vs. time graph below to answer the questions that follow.



1. Describe the motion of the object during each interval.

- ① speeding up ⊖
- ② constant ⊖ velocity
- ③ slowing down ⊖
- ④ at rest
- ⑤ speeding up ⊕
- ⑥ —

2. What is the position at 3 seconds? ⊕ 6m

3. What is the average velocity of the object from 3 s to 4 s? ⊖ 4 m/s

4. What is the average velocity of the object from 6 s to 8 s? 0 m/s

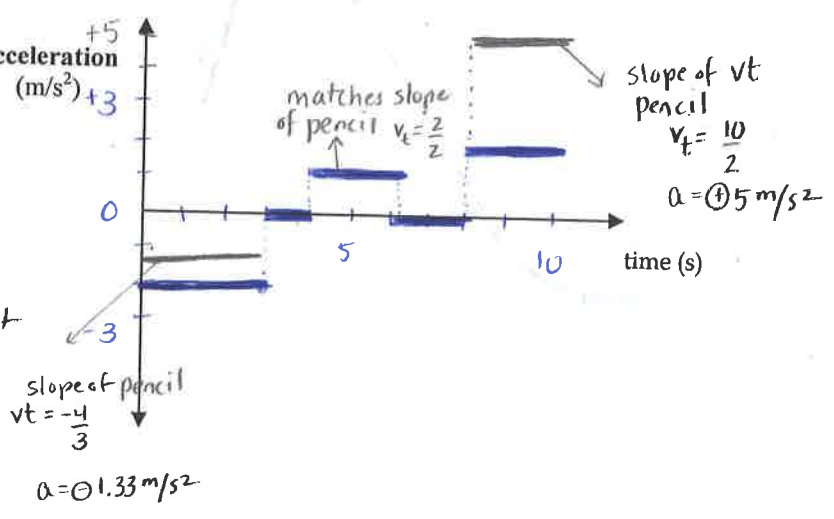
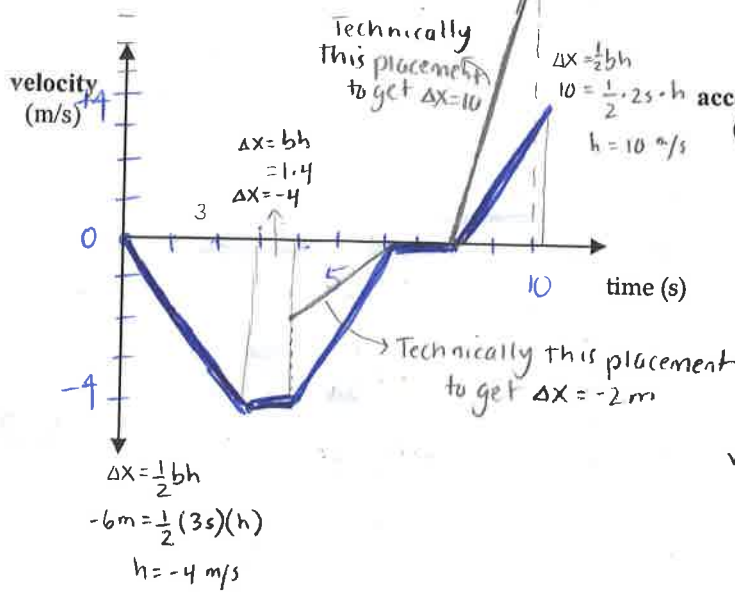
5. What is the average velocity for the entire 10 second interval of the graph?

6. What is the average speed for the entire 10 second interval of the graph?

7. Draw the v vs. t and a vs. t graphs that correspond to the above position vs. time graph.

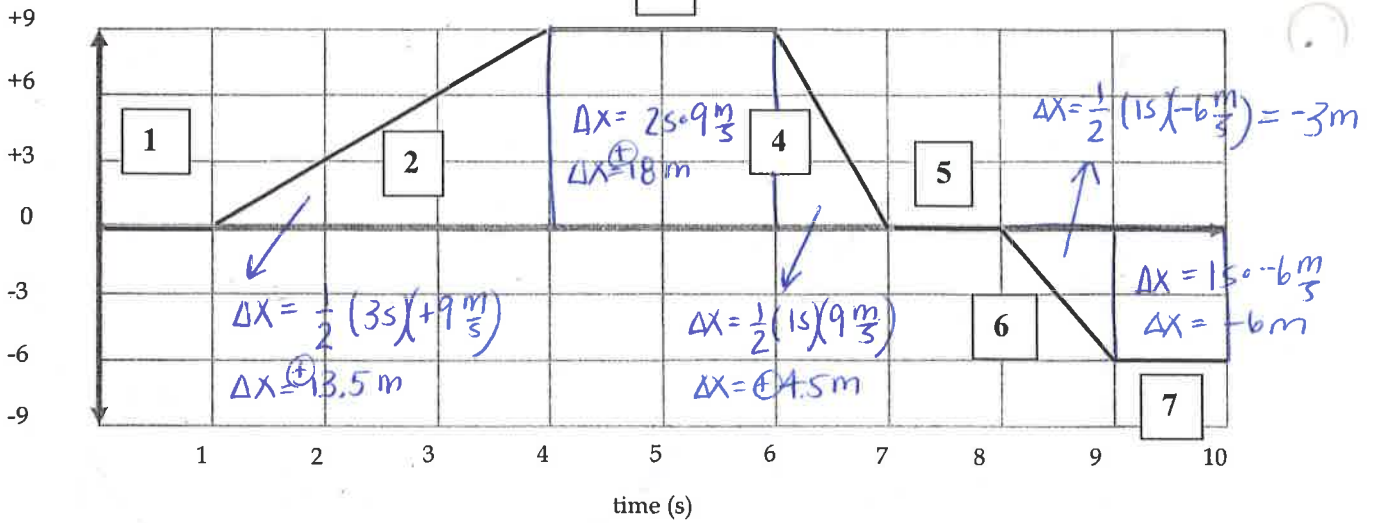
$$\frac{2}{9.5s} = 0.21 \frac{m}{s} \Rightarrow \frac{2}{10} = 0.2 \frac{m}{s}$$

$$\frac{22m}{9.5s} = 2.31 \frac{m}{s} \Rightarrow \frac{22}{10} = 2.2 \frac{m}{s}$$



Use the velocity vs. time graph below to answer the questions that follow.

E



W

1. Describe the motion of the object during each interval.

① at rest

② speeding up \oplus / constant \oplus accel.

③ constant \oplus velocity

④ slowing down \oplus / constant \ominus accel

⑤ at rest

⑥ speeding up \ominus / constant \ominus accel

⑦ constant \ominus velocity

2. What is the instantaneous velocity at 2 seconds? $\oplus 3\frac{m}{s}$

3. How far did the object travel during 1 s to 7 s? $13.5 + 18 + 4.5 = \oplus 36m$

4. How far did the object travel during 8 s to 10 s? $-3 + -6 = \ominus 9m$

5. During what interval(s) did it move with a constant velocity?

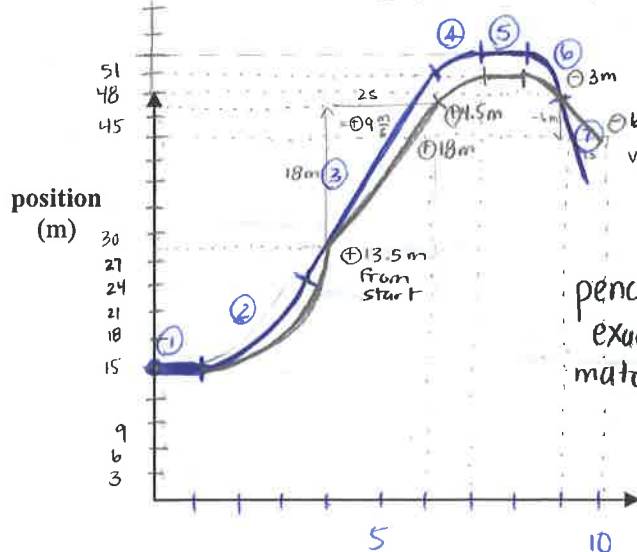
③ and ⑦
 $\oplus 9m/s$ $-6m/s$

6. What was/were the velocity/velocities while it moved at a constant velocity?

7. Determine the magnitude and direction (sign) of the acceleration for all periods when the object accelerated.

② $+3m/s^2$ ④ $-9m/s^2$ ⑥ $-6m/s^2$

8. Draw the x vs. t and a vs. t graphs that correspond to the above velocity vs. time graph.



acceleration (m/s^2)

