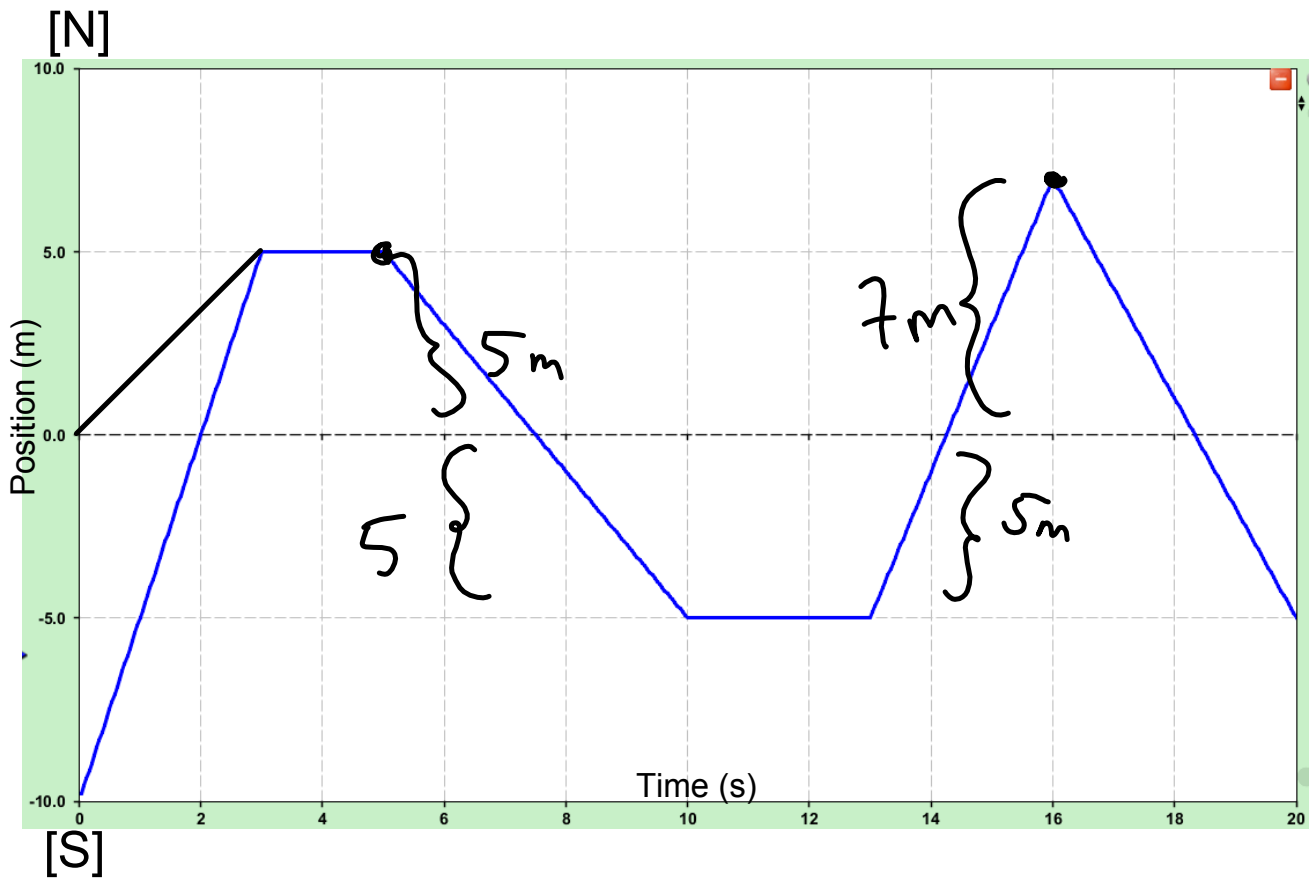


Use the graph to answer the following 10 questions.



1 What was the initial velocity of the object?

$$\vec{v} = \frac{d}{t} = \frac{5.0 \text{ m}}{3 \text{ s}} = \boxed{1.7 \text{ m/s}} \quad \uparrow \text{East}$$

2 For how long was the object not moving?

$$\begin{array}{ccc} 2s & + & 3s \\ \uparrow & & \uparrow \\ \text{between} & & \text{between} \\ 3-5s & & 10-13s \end{array} \quad \textcircled{5s}$$

3 How many times did the object return to the starting position?

3 times
around 7.5s
14.5s
and 18.5s

4 Calculate the distance traveled in the first 10 seconds.

$$d = 5\text{m}[E] + 10\text{m}[W]$$

$$= 15\text{m}$$

* direction does not matter

5 For what length of time was the object traveling south?

9s

6 Calculate the instantaneous velocity at the 7 second mark.

A 2 m/s [N]

B -2 m/s [N]

C 2 m/s

$$\vec{v} = \text{slope}$$

$$= \frac{-5 - 5}{10 - 5}$$

$$= \frac{-10}{5} = -2$$

7 Calculate the average speed between 3 and 13 seconds.

A -1 m/s

B 1 m/s

C -2 m/s

D 2 m/s

$$\vec{v}_{sp} = \frac{d}{t}$$

$$d = 10 \text{ m}$$

$$t = 10 \text{ s}$$

$$v_{sp} = \frac{10 \text{ m}}{10 \text{ s}} = 1 \text{ m/s}$$

8 Calculate the average velocity between 5 and 16 seconds.

A 0.18 m/s [N]

B 5.5 m/s [N]

C -0.18 m/s [N]

D -5.5 m/s [N]

$$\vec{v}_{avg} = \frac{\vec{d}}{t}$$

$$\vec{v}_{avg} = \frac{\vec{d}_f - \vec{d}_o}{t}$$

$$\begin{aligned} \vec{d}_f &= 7\text{m} & t &= 11\text{s} \\ \vec{d}_o &= 5\text{m} \end{aligned}$$

$$\vec{v}_{avg} = \frac{7 - 5}{11} = \frac{2}{11}$$

$$= 0.18 \text{ m/s}$$

9 Calculate the average speed between 5 and 16 seconds.

A 22 m/s

B 11 m/s

C 2.0 m/s

D 0.5 m/s

$$v_{sp} = \frac{d}{t}$$

$$\begin{array}{l} \text{dist South} = 10\text{m} \\ \text{dist North} = 12\text{m} \end{array} \left. \vphantom{\begin{array}{l} \text{dist South} = 10\text{m} \\ \text{dist North} = 12\text{m} \end{array}} \right\} 22\text{m}$$
$$t = 11\text{s}$$

$$v_{sp} = \frac{22}{11} = 2\text{m/s}$$

10 Calculate the average velocity for the entire 20 seconds.

$$\vec{v}_{\text{avg}} = \frac{\vec{d}_f - d_o}{t}$$

$$\vec{d}_o = 0\text{ m}, \vec{d}_f = -5\text{ m}$$

$$t = 20\text{ s}$$

$$\vec{v}_{\text{avg}} = \frac{-5 - 0}{20} = \boxed{-0.25\text{ m/s}}$$

Attachments

moving-man_all.jar