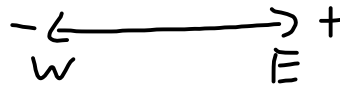


Guided Practice

A person drives the following in 3.5 hours:

- 25 km [E]
- 40 km [W]
- 30 km [W]
- 60 km [E]



1. Calculate the total distance traveled. (Does direction matter?)

$$d = 25 + 40 + 30 + 60 = \boxed{155 \text{ km}}$$

2. Calculate the final position. (How do we adjust for different directions in the same dimension?)

$$\vec{d} = 25 + (-40) + (-30) + 60$$

$$= \boxed{15 \text{ km [E]}}$$

3. Calculate the average speed. (check $v_{sp} = \frac{d}{t}$ handbook/notes for formula)

$$d = 155 \text{ km} \quad v_{sp} = ? \quad v_{sp} = \frac{155}{3.5}$$

$$t = 3.5 \text{ h} \quad = \boxed{44 \text{ km/h}}$$

4. Calculate the average velocity. (check $\vec{v}_{avg} = \frac{\vec{d}}{t}$ handbook/notes for formula)

$$\vec{d} = 15 \text{ km [E]} \quad \vec{v}_{avg} = \frac{15}{3.5}$$

$$t = 3.5 \text{ h} \quad = \boxed{4.3 \text{ km/h [E]}}$$

$$v_{avg} = ?$$

6, 8-11

$$12 \text{ m/s} \times 5 \text{ s} = \underline{60 \text{ m}} [S]$$

$$18 \text{ m/s} \times 9 \text{ s} = \underline{162 \text{ m}} [N]$$

$$15 \text{ m/s} \times 11 \text{ s} = \underline{165 \text{ m}} [S]$$

Total time $\rightarrow 25 \text{ s}$

$$d = 60 + 162 + 165$$

$$d = 387 \text{ m}$$

$$v_{sp} = \frac{d}{t} = \frac{387 \text{ m}}{25 \text{ s}} = \boxed{15.5 \text{ m/s}}$$

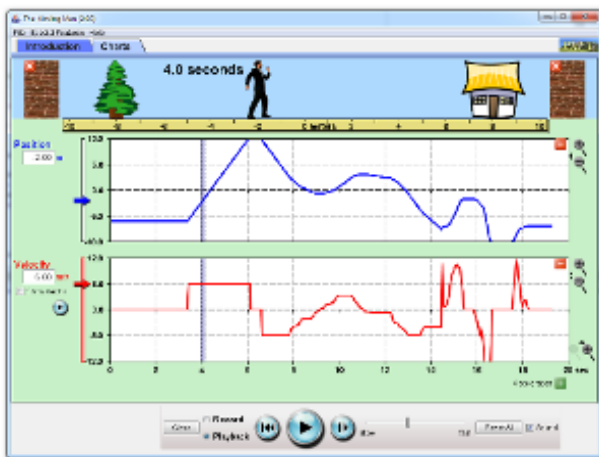
$$\vec{v}_{avg} = \frac{\vec{d}}{t} = \frac{-60 + 162 - 165}{25}$$



$$= \frac{-63}{25} = \boxed{-2.5 \text{ m/s} [N]}$$

The Graphical Analysis of Position & Time

The Moving Man



*Use equation feature

Objectives

- Review Frame of reference and coordinate system.
- Analyze how position can change with time.
- Learn how to find key points on the graph.
- Develop knowledge about how the graph relates to speed and velocity.