Speed + Velocity

Speed - how much distance an object moves in a period of time

scalar quantity - magnitude only ex: $60 \frac{Km}{hr}$

Velocity - change in position in a period of time relative to a reference point

vector quantity - magnitude + direction ex: $60 \frac{Km}{hr}$ NW

average speed = $\frac{\text{total distance}}{\text{total time}}$

instantaneous speed - speed at any given moment

speed of light is the fastest in the universe

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"c" = $3.00 \times 10^8 \frac{m}{s}$

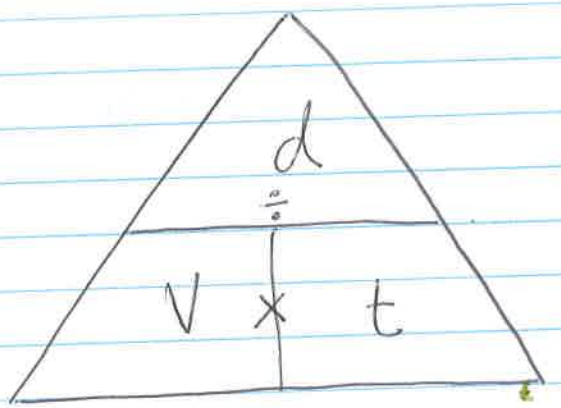
$300,000,000 \frac{m}{s}$

(4)

Velocity Formula

$$\text{velocity} = \frac{\text{displacement}}{\text{time}}$$

$$\vec{v} = \frac{\vec{d}}{t} \qquad \text{units} = \frac{m}{s} \quad (\text{SI units})$$



$$V = \frac{d}{t} \qquad t = \frac{d}{V} \qquad d = V \times t$$

$$V = \frac{\Delta d}{\Delta t} = \frac{d_f - d_i}{t_f - t_i}$$