

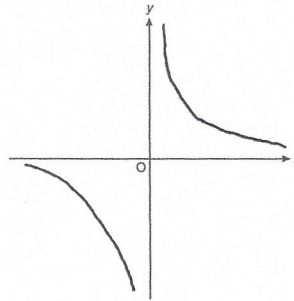
29th October



Corbettmaths

Sketch

$$y = \frac{1}{x}$$



A sculptor wants to transport a piece of rock. It is a sphere with radius 0.4m to the nearest centimetre. *40cm UB 40.5cm*
 The density of the rock is 3.4g/cm³
 The truck can carry up to 1000kg to one significant figure. *LB 950kg*

$$V = \frac{4}{3} \times \pi \times 40.5^3 = 278261.8569 \text{ cm}^3$$

$$m = d \times V$$

$$3.4 \times 278261.8569 = 946090.3135 \text{ g}$$

$$946 \text{ kg}$$

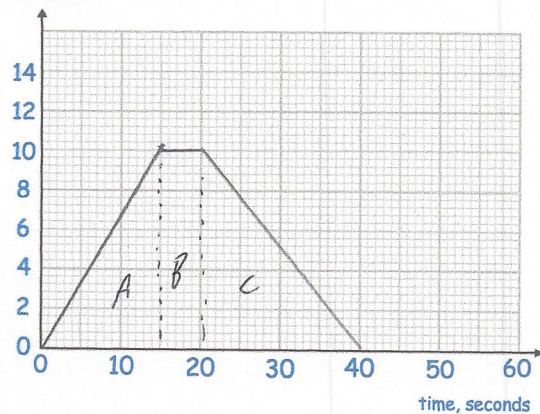
Can the sculptor safely transport the rock?

Yes

A remote control car drives in a straight line.

It starts from rest and travels with constant acceleration for 15 seconds reaching a velocity of 10m/s.
 It then travels at a constant speed for 5 seconds.
 It then slows down with constant deceleration of 0.5m/s².

Velocity, m/s



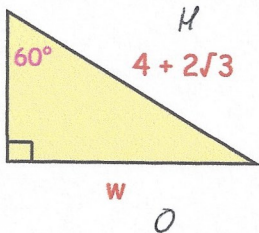
Draw a velocity-time graph and work out the total distance travelled.

$$225 \text{ m}$$

$$A = \frac{1}{2} \times 15 \times 10 = 75 \text{ m}$$

$$B = 5 \times 10 = 50 \text{ m}$$

$$C = \frac{1}{2} \times 20 \times 10 = 100 \text{ m}$$



50°

$$w = \sin(60) \times (4 + 2\sqrt{3})$$

$$= \frac{\sqrt{3}}{2} \times (4 + 2\sqrt{3})$$

$$= \frac{4\sqrt{3}}{2} + \frac{2 \times 3}{2}$$

$$= 2\sqrt{3} + 3$$

Find the exact length of the side labelled w.