



Two clay models of the Statue of Liberty are mathematically similar.



The smaller model has a height of 15cm.

The larger model has a height of 20cm.

The smaller model weighs 108g.

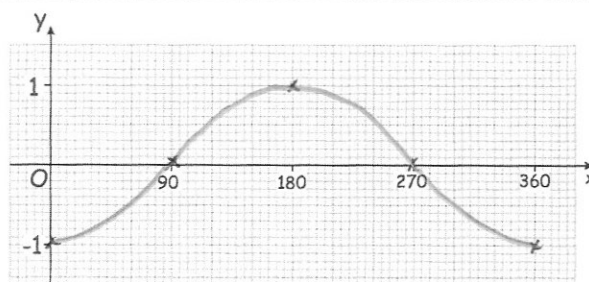
Work out the mass of the larger model.

$$\begin{array}{ccc} & \times \frac{4}{3} & \\ & \nearrow & \\ 15\text{cm} & & 20\text{cm} \\ & \searrow & \\ & \times \left(\frac{4}{3}\right)^3 & \\ 108\text{g} & & 256\text{g} \\ & & 256\text{g} \end{array}$$

Write $x^2 - 6x + 17$ in the form $(x - a)^2 + b$

$$\begin{aligned} (x-3)^2 - 9 + 17 \\ (x-3)^2 + 8 \end{aligned}$$

Sketch $y = -\cos x^\circ$



Solve

$$x^2 + y^2 = 36$$

$$\frac{1}{2}x = y + 3$$

$$x = 2y + 6$$

$$(2y+6)^2 + y^2 = 36$$

$$4y^2 + 24y + 36 + y^2 = 36$$

$$5y^2 + 24y = 0$$

$$y(5y + 24) = 0$$

$$\begin{aligned} y &= 0 \\ x &= 6 \end{aligned}$$

$$y = -\frac{24}{5}$$

$$x = -\frac{18}{5}$$