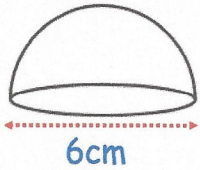


24th September



Corbettmaths



$$\frac{1}{2} \left( \frac{4}{3} \pi \times 3^3 \right) = 18\pi \text{ cm}^3$$

$$d^m \quad m = 3 \times 18\pi = 169.646 \text{ g}$$

The paperweight is a hemisphere with diameter 6cm.

The glass has a density of  $3\text{g/cm}^3$ .

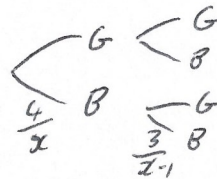
Calculate the mass of the paperweight.

There are  $x$  apples in a crate.  
4 of the apples are bad.

Fiona chooses two apples from the crate, without replacement.  
The probability she selects two bad apples is  $\frac{1}{11}$

Prove

$$x^2 - x - 132 = 0$$



Find  $x$ , the number of apples in the crate.

$$\frac{4}{x} \times \frac{3}{x-1} = \frac{1}{11}$$

$$\frac{12}{x^2-x} = \frac{1}{11} \quad x^2-x = 132$$

$$x^2-x-132=0$$

$$x = 12 \text{ or } x = -11$$

12

The line  $l_1$  has equation  $y = 4x - 10$ .  
The line  $l_2$  has equation  $x + y = 20$

The lines  $l_1$  and  $l_2$  intersect at the point C.  
The lines  $l_1$  and  $l_2$  cross the line  $y = 2$  at the points A and B.

Find the area of triangle ABC.

$$x + (4x - 10) = 20$$

$$5x = 30 \quad x = 6 \quad C(6, 14)$$

$$A(3, 2) \quad B(18, 2)$$

$$\frac{1}{2} \times 15 \times 12 = 90$$

Given that

$$16^x = 4^{10-x} \quad (2^4)^x = (2^2)^{10-x}$$

$$2^{4x} = 2^{20-2x}$$

Find the value of  $x$

$$4x = 20 - 2x$$

$$6x = 20$$

$$x = \frac{20}{6} = \frac{10}{3}$$