

1st August

Higher 5-a-day



Corbettmaths

Ciara has a box of 1200 counters. She takes out 40 counters and 7 of them were red. Ciara then returns the counters to the box.

Use this information to estimate how many of the counters in the box are red.

$$1200 \times \frac{7}{40}$$

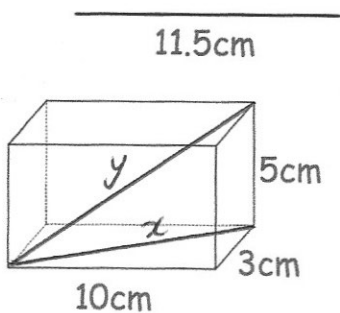
or
 $\frac{7}{40}$ of 1200

$$210$$

Simplify fully

$$\frac{x^2 + 8x}{x^2 - 64}$$

$$\frac{x(x+8)}{(x-8)(x+8)} = \frac{x}{x-8}$$



$$\begin{aligned} x^2 &= 3^2 + 10^2 \\ &= 109 \\ x &= \sqrt{109} \end{aligned}$$

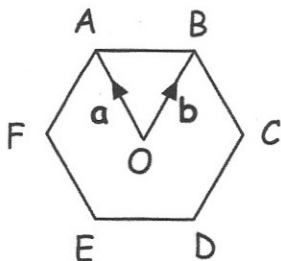
Is it possible to fit a thin, straight rod that is 11.5cm entirely inside the box?

$$\begin{aligned} y^2 &= x^2 + 5^2 \\ y^2 &= (\sqrt{109})^2 + 5^2 \\ y^2 &= 134 \end{aligned}$$

$$AC = 11.576$$

yes it will fit.

ABCDEF is a regular hexagon.



Find in terms of **a** and **b** the vector

\vec{BA}

$$\underline{a} - \underline{b}$$

Find in terms of **a** and **b** the vector

\vec{FC}

$$2\underline{b} - 2\underline{a}$$

Find in terms of **a** and **b** the vector

\vec{ED}

$$\underline{b} - \underline{a}$$