M8 = 16 days to go!

Keyword

9. Shown below are two mathematically similar parallelograms.

Area $= x^9$

Area: $45cm^2$

Area: $5cm^2$

A

B

2cm

x
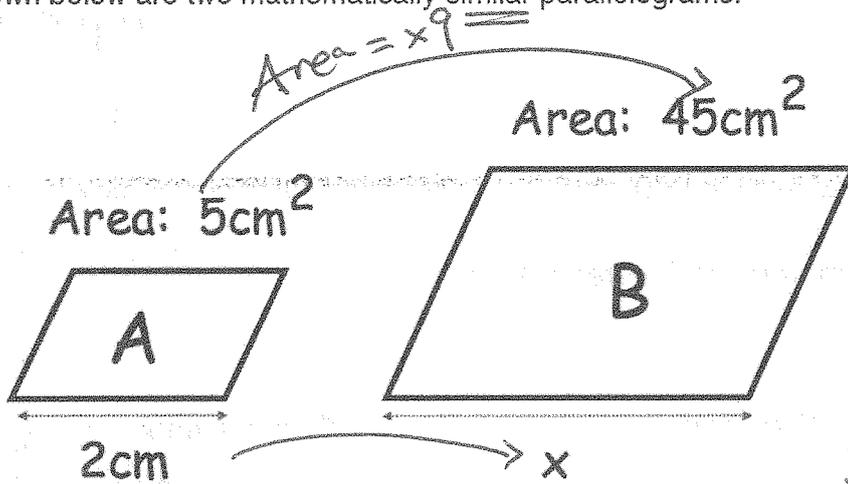
Find x

Area $= x k^2$

Lines $= x k$

Big Hint
Look at the units.

Area $= x3^2$

Lines $= x3$

small $\longrightarrow$ big

2cm $\xrightarrow[\text{lines}]{\times 3}$ 6cm
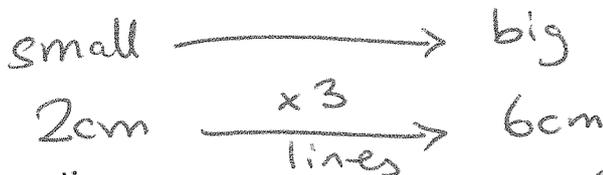
............6............cm
(2)

Solve the equations

$$2x + y = 11$$
$$2x^2 - y^2 = 23$$

$(11-2x)(11-2x)$

$121 - 22x - 22x + 4x^2$

$2x + y = 11$

$\boxed{y = 11 - 2x}$

Put this into the other
eq. Solve simultaneous

$2x^2 - (11-2x)^2 = 23$

$2x^2 - (11-2x)(11-2x) = 23$

$2x^2 - 121 + 44x - 4x^2 = 23$

$2x^2 - 121 + 44x - 4x^2 = 23$

$0 = 2x^2 - 44x + 144$

$0 = (2x - 8)(x - 18)$

$x = 4 \qquad x = 18$

Now Find
the y values

$x = 4$
gives $y = 3$

$x = 18$
gives $y = -25$

Don't forget
to check!

2.   Natalie has 8 socks in a drawer.

5 of the socks are black.
3 of the socks are white.

replaces it!

Natalie takes out a sock at random, writes down its colour and puts it back into the drawer.
Then Natalie takes out a second sock, at random, and writes down its colour.

(a) Complete the probability tree diagram.

First sock   Second sock $\frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$

$\frac{5}{8}$ .... — Black ☆

$\frac{5}{8}$ .... — Black

$\frac{3}{8}$ .... — White

$\frac{5}{8}$ .... — Black

$\frac{3}{8}$ .... — White
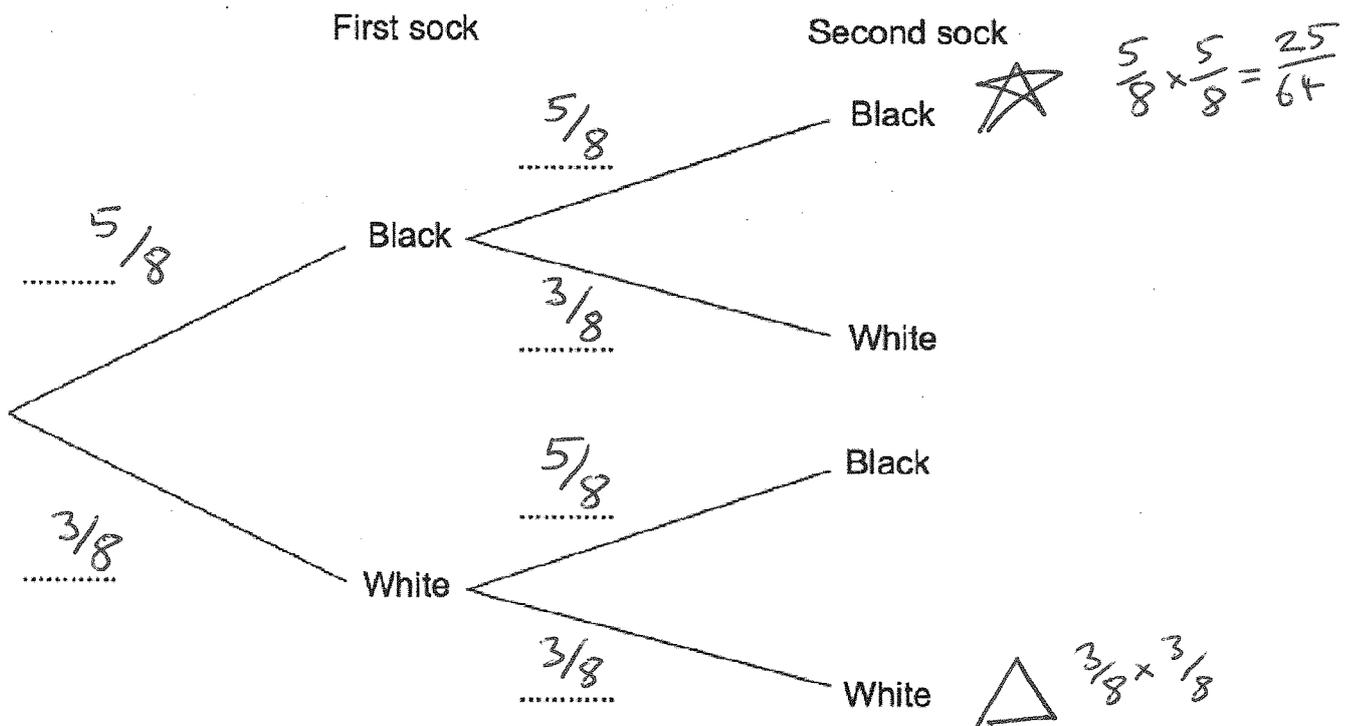
$\frac{3}{8}$ .... — White   △ $\frac{3}{8} \times \frac{3}{8}$

(2)

(b) Work out the probability that the two socks are the same colour.

Black AND Black   ☆

$\frac{5}{8} \times \frac{5}{8}$

$\frac{25}{64}$

OR

White AND White
$\frac{3}{8} \times \frac{3}{8}$

$\frac{9}{64}$

$\frac{34}{64}$

(2)