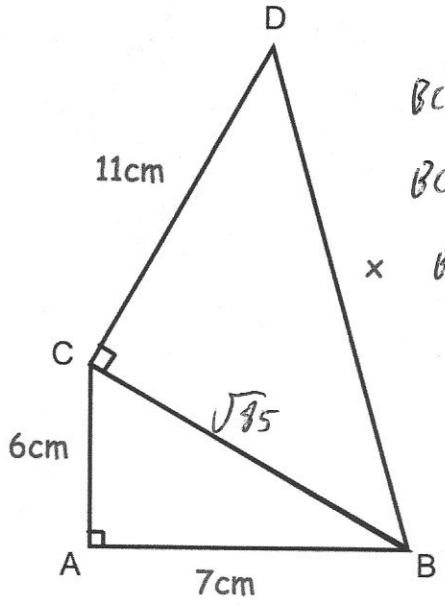
22nd March **Higher 5-a-day**

Corbettmaths



$BC^2 = 6^2 + 7^2$

$BC^2 = 85$

$BC = \sqrt{85}$

Find the length of BD

$11^2 + \sqrt{85}^2 = x^2$

$121 + 85 = x^2$

$x^2 = 206$

$x = \sqrt{206}$ or 14.353 cm

Find the area of triangle BCD.

$\frac{1}{2} \times \sqrt{85} \times 11$

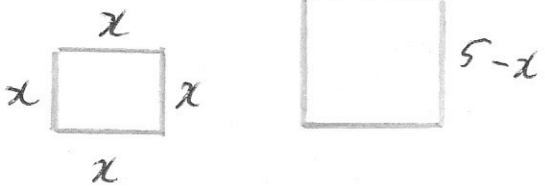
$50.71 cm^2$

Explain why the area of a rectangle increases by a factor of 4 when the side length is doubled.

x	$2x$
$A = xy$	$A = 4xy$
y	$2y$

As both sides are twice as large, the area is 4 times larger.

A wire of length 20cm is cut into **two** pieces, each of which is bent into a square.



If the length of the side of one square is x cm, show that the length of the side of the other square is (5 – x) cm.

$\frac{20 - 4x}{4} = 5 - x$

The **total** area of the two squares is 14.5cm².

Find the lengths of the two pieces of wire.

$x^2 + (5-x)^2 = 14.5$

$x^2 + (5-x)(5-x) = 14.5$

$x^2 + 25 - 10x + x^2 = 14.5$

$2x^2 - 10x + 10.5 = 0$

$4x^2 - 20x + 21 = 0$

$(2x - 3)(2x - 7) = 0$

$x = 1.5$ $x = 3.5$

6cm and 14cm