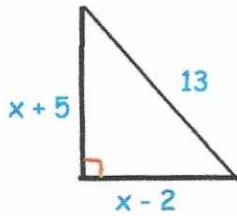


21st August



Corbettmaths



$$(x+5)^2 + (x-2)^2 = 13^2$$

$$x^2 + 10x + 25 + x^2 - 4x + 4 = 169$$

$$2x^2 + 6x + 29 = 169$$

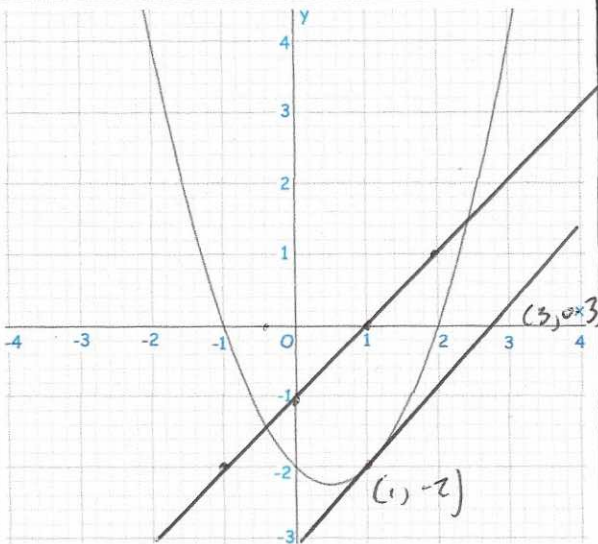
$$2x^2 + 6x - 140 = 0$$

$$x^2 + 3x - 70 = 0$$

Find x

$$(x+10)(x-7) = 0$$

$$x = 7$$



By drawing an appropriate straight line, use your graph to find estimates for the solutions of $x^2 - 2x - 1 = 0$

$$y = x^2 - 2x - 2$$

$$0 = x^2 - 2x - 1$$

sub

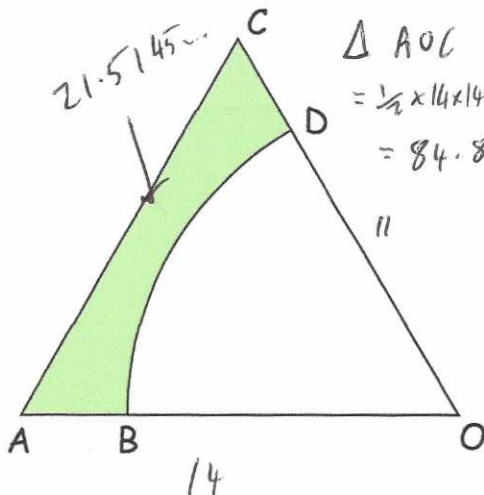
$$y = x - 1$$

$$x = -0.4 \text{ or } x = 2.4$$

Shown is $y = x^2 - x - 2$

Calculate an estimate for the gradient of the graph $y = x^2 - x - 2$ at the point where $x = 1$

$$\frac{0.3 - (-2)}{3 - 1} = \frac{2.3}{2} = 1.15$$



$$\Delta AOC = \frac{1}{2} \times 14 \times 14 \times \sin 60$$

$$= 84.87 \text{ cm}^2$$

$$\text{Sector } OBD = \frac{1}{6} \times \pi \times 11^2$$

$$= 63.355 \dots$$

AOC is an equilateral triangle of side length 14cm.

OBD is a sector of a circle with centre O and radius 11cm.

Calculate the area of the shaded region as a percentage of the area of triangle AOC.

Give your answer correct to 3 significant figures.

$$\frac{21.514 \dots}{84.87} \times 100 = 25.35 \%$$