12th February

Corbettmaths

Make a the subject

$$\frac{1}{a} - \frac{1}{b} = \frac{1}{c}$$

$\frac{b}{ab} - \frac{a}{ab} = \frac{1}{c}$

$\frac{b-a}{ab} = \frac{1}{c}$

$c(b-a) = ab$

$bc - ac = ab$

$bc = ab + ac$

$bc = a(b+c)$

$a = \frac{bc}{b+c}$

Solve $x^2 - 4x - 11 = 0$ using completing the square.

$(x-2)^2 - 4 - 11 = 0$

$(x-2)^2 - 15 = 0$

$(x-2)^2 = 15$

$x - 2 = \pm\sqrt{15}$

$x = 2 \pm \sqrt{15}$

$x = 2+\sqrt{15}$ or $x = 2-\sqrt{15}$

Here are the first 5 terms of a quadratic sequence

9 17 29 45 65

8 12 16 20

4 4 4

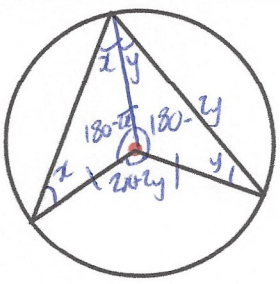
Find an expression, in terms of n, for the nth term of this quadratic sequence.

$2a = 4$ $\quad 3a+b = 8$ $\quad a+b+c = 9$

$a = 2$ $\quad 6+b = 8$ $\quad 2+2+c = 9$

$b = 2$ $\quad c = 5$

$2n^2 + 2n + 5$



Prove that the angle at the centre is twice the angle at the circumference.

since at centre angle is $2x+2y$

at circumference is $x+y$

QED

The minimum point of a quadratic graph in the form $y = x^2 + ax + b$ is (6, 3).

Find a and b.

$y = (x-6)^2 + 3$

$y = (x-6)(x-6) + 3$

$y = x^2 - 12x + 39$

$a = -12$ $\quad b = 39$