

24th June



Corbettmaths

Show that  $(\sqrt{2} + 3\sqrt{8})^2 = 98$ 

$$(\sqrt{2} + 3\sqrt{8})(\sqrt{2} + 3\sqrt{8})$$

$$2 + 12 + 12 + 72 = 98$$

Prove that when two consecutive integers are squared, that the difference is equal to the sum of the two consecutive integers.

$$(n+1)^2 = n^2 + 2n + 1$$

$$- n^2$$

$$= 2n + 1$$

$$n + (n+1) = 2n+1$$

QED

$$(ax + 1)(x - 3)(x + b) \equiv 2x^3 - 3x^2 - 8x - 3$$

Find the values of a and b

$$a = 2$$

$$b = 1$$

The population of birds living on an island is decreasing exponentially.

Martin has begun to monitor the population each year.

Year 6 - Population 5000

Year 8 - Population 4000

What was the population in Year 2?

$$y = k \times a^{-x}$$

$$5000 = k \times (\sqrt{1.25})^{-6}$$

$$5000 = k \times a^{-6}$$

$$k = \frac{5000}{(\sqrt{1.25})^{-6}}$$

$$4000 = k \times a^{-8}$$

$$= 9765.625$$

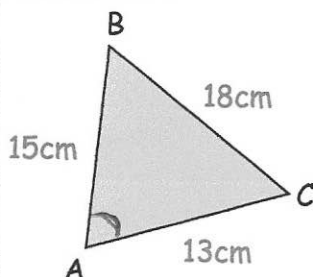
divide

$$1.25 = a^2$$

$$a = \sqrt{1.25}$$

$$y = 9765.625 \times (\sqrt{1.25})^{-2}$$

$$= 7812.5$$



Find the size of the largest angle in this triangle.

$$\cos A = \frac{15^2 + 13^2 - 18^2}{2 \times 15 \times 13}$$

$$A = 79.66^\circ$$