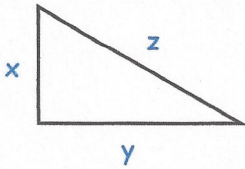


9th September



Corbettmaths

Shown is a right angle triangle



$$x^2 + y^2 = z^2$$

$$x = \sqrt{z^2 - y^2}$$

y = 8.5cm correct to the nearest mm
z = 9.6cm correct to the nearest mm

Calculate the lower bound for x.

$$\text{Min } x = \sqrt{\text{Min } z^2 - \text{Max } y^2}$$

$$\text{Min } x = \sqrt{9.55^2 - 8.55^2}$$

$$\text{Min } x = 4.2544\text{cm}$$

Given

$$3x - 4 : x + 1 = 2x + 9 : 4x$$

Find the possible values of x

$$\frac{3x-4}{2x+9} = \frac{x+1}{4x}$$

$$4x(3x-4) = (x+1)(2x+9)$$

$$12x^2 - 16x = 2x^2 + 11x + 9$$

$$10x^2 - 27x - 9 = 0$$

$$x = 3 \quad \text{or} \quad x = -0.3$$

Here are the first 5 terms of a quadratic sequence

$$an^2 + bn + c$$

4 10 18 28 40

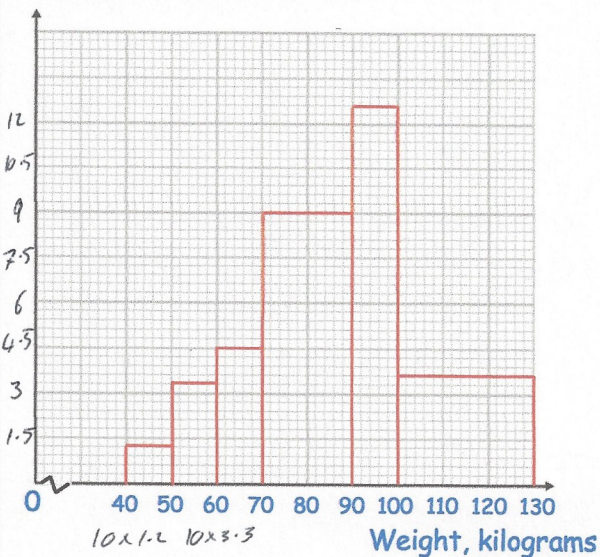
Find an expression, in terms of n, for the nth term of this quadratic sequence.

$$\begin{array}{cccccc} 4 & 10 & 18 & 28 & 40 & \\ & 6 & 8 & 10 & 12 & \\ & & 2 & 2 & 2 & \end{array}$$

$$a=1 \quad b=3 \quad c=0$$

$$n^2 + 3n$$

The histogram shows the weights in kilograms of 504 athletes.



$$10 \times 1.2 \quad 10 \times 3.3$$

$$12 \quad 33$$

$$\underline{45}$$

45 athletes weigh under 60kg.
Calculate an estimate of the number of athletes between 70 and 95kg.

$$70-90\text{kg} \quad 20 \times 9 = 180$$

$$90-100\text{kg} \quad 10 \times 12.6 = 126$$

$$126 \div 2 = 63$$

$$180 + 63 = \underline{243}$$