



Here are the first 5 terms of a quadratic sequence

24 30 38 48 60

Find an expression, in terms of  $n$ , for the  $n$ th term of this quadratic sequence

24 30 38 48

6 8 10  
2 2

$$n^2 + 3n + 20$$

$$a = 1$$

$$b = 3$$

$$c = 20$$

A circle has equation  $x^2 + y^2 = 196$

Work out the length of the diameter.

$$r = 14$$

$$d = 2 \times 14 = 28$$

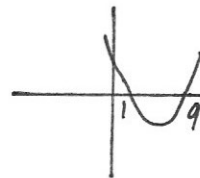
Solve

$$x^2 + 9 > 10x$$

$$x^2 - 10x + 9 > 0$$

$$(x-9)(x-1)$$

$$x=9 \quad x=1$$



$$x < 1 \quad \text{or} \quad x > 9$$

Clive has a cone of base diameter 20cm.

He removes a cone diameter 12cm from the top of his cone to leave a frustum.

The height of the frustum is 6cm.

Find the volume of the frustum

$$\frac{1}{3}(\pi \times 10^2) \times 15 - \frac{1}{3}(\pi \times 6^2) \times 9$$

$$= 1231.5 \text{ cm}^3$$

The frustum has the same volume as a sphere.

Find the radius of the sphere.

$$\frac{4}{3}\pi r^3 = 1231.50432$$

$$r^3 = 294$$

$$r = 6.6494 \text{ cm}$$

