



$$g(x) = 15 - x \quad h(x) = x^3$$

Solve $gh(x) = 140$

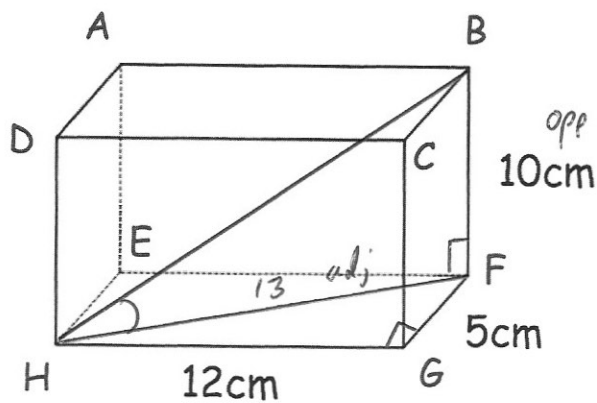
$$15 - x^3 = 140$$

$$-x^3 = 125$$

$$x^3 = -125$$

$$x = -5$$

ABCDEFGH is a cuboid



$$FH = 13 \quad (5, 12, 13)$$

or

$$FH^2 = 5^2 + 12^2$$

Calculate the length of BH

$$BH^2 = 10^2 + 13^2$$

$$BH^2 = 269$$

$$BH = 16.4 \text{ cm}$$

Find the size of angle BHF

$$\tan BHF = \frac{10}{13}$$

$$BHF = 37.57^\circ$$

The n th term of a sequence is $n^2 - 10n + 30$

By using completing the square, show that every term is positive.

$$(n-5)^2 - 25 + 30$$

$$(n-5)^2 + 5$$

$$\text{since } (n-5)^2 \geq 0$$

$$(n-5)^2 + 5 > 0$$

\therefore positive

$$y = a \times b^x$$

Where a and b are positive constants.

$$y = 256 \text{ when } x = 3$$

$$y = 16384 \text{ when } x = 5$$

Work out y when $x = 2$

$$16384 = a \times b^5$$

$$256 = a \times b^3$$

$$\frac{16384}{256} = \frac{a \times b^5}{a \times b^3}$$

$$64 = b^2$$

$$b = 8$$

$$a = 0.5$$

$$0.5 \times 8^2$$

$$= 32$$