



A, B and C have coordinates
(2, 9), (5, -3) and (6, k) respectively.

AB is perpendicular to AC

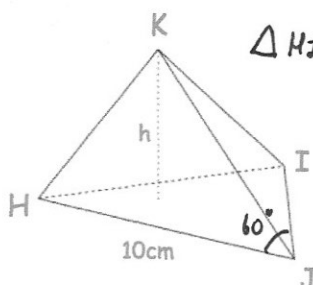
Find k

$$\begin{aligned} \text{gradient of } AB &= \frac{-12}{3} \\ &= -4 \end{aligned}$$

$$\text{gradient of } AC = \frac{1}{4}$$

$$\frac{k-9}{4} = \frac{1}{4}$$

$$k = 10$$



$$\Delta HIJ = \frac{1}{2} \times 10 \times 10 \times \sin 60$$

$$= 43.3 \text{ cm}^2$$

$$\frac{1}{3} Ah = 300$$

$$Ah = 900$$

$$h = 900 \div 43.3$$

HJK is a triangle based pyramid.

The base HIJ is an equilateral triangle with side 10cm.

The volume of the pyramid is 300 cm^3 . Calculate the perpendicular height, h , of the pyramid.

$$h = 20.7846 \text{ cm} \quad h = 20.8 \text{ cm to 1 dp.}$$

The point $(-6, -7)$ is the turning point of the graph $y = x^2 + ax + b$

Find a and b $y = (x + 6)^2 - 7$

$$y = x^2 + 12x + 36 - 7$$

$$y = x^2 + 12x + 29$$

C and D are two independent events

$$P(C) = 0.6$$

$$P(D) = 0.3 \quad P(D') = 0.7$$

Find $P(C \cap D)$

$$0.6 \times 0.3 = 0.18$$

Show

$$\frac{3 - \sqrt{32}}{1 + \sqrt{2}} \times (1 - \sqrt{2})$$

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can be written in the form $a + b\sqrt{2}$

$$\frac{3 - \sqrt{32} - 3\sqrt{2} + \sqrt{64}}{1 - 2}$$

$$\frac{11 - 7\sqrt{2}}{-1} = 7\sqrt{2} - 11$$

$$\text{or } -11 + 7\sqrt{2}$$