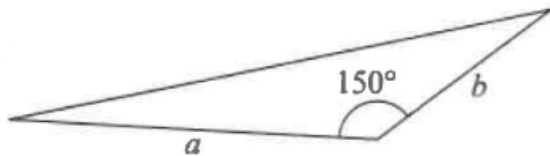


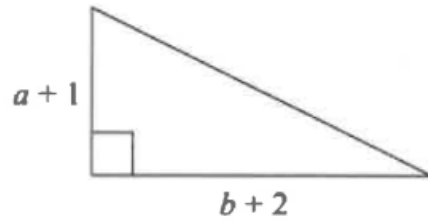
Monster Questions – Set 2

Question 1

The diagram shows two triangles, A and B.



Triangle A



Triangle B

Diagram **NOT**
accurately drawn

The area of triangle B is 3 times the area of triangle A.

Given that $b > 4$, find an expression for a in terms of b .

Question 2

n is a positive integer.

(a) Explain why $2n + 1$ is an odd number for all values of n .

(1)

(b) Show, using algebra, that the sum of any 4 consecutive odd numbers is always a multiple of 8

Question 3

(a) Show that $(5 - \sqrt{8})(7 + \sqrt{2}) = 31 - 9\sqrt{2}$

Show each stage of your working.

(3)

Given that c is a prime number,

(b) rationalise the denominator of $\frac{3c - \sqrt{c}}{\sqrt{c}}$

Simplify your answer.

Question 4

A and B are two sets.

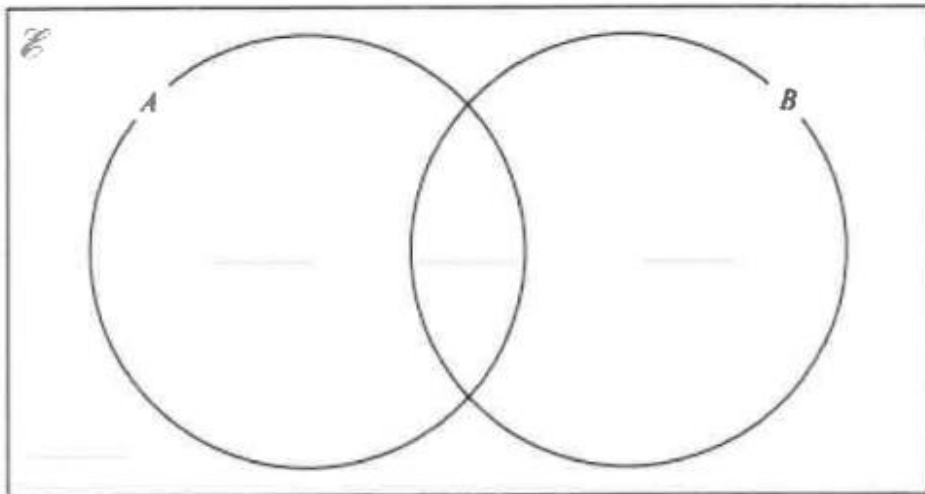
$$n(\mathcal{U}) = 36$$

$$n(B) = 21$$

$$n(A \cap B) = 8$$

$$n(A') = 18$$

- (a) Complete the Venn diagram to show the **number of elements** in each region of the Venn diagram.



(3)

- (b) Find $n(A \cup B)$

(1)

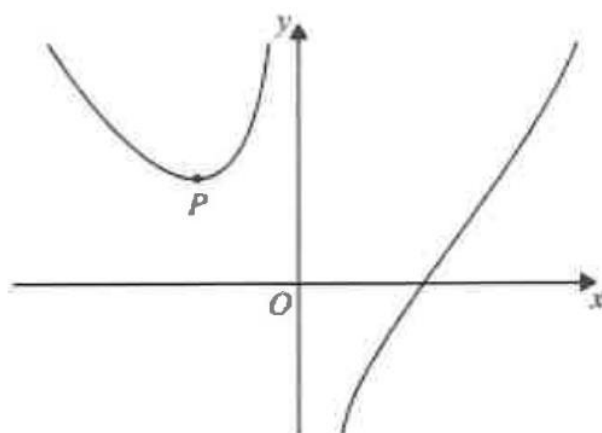
- (c) Find $n(A \cap B')$

Question 5

$$y = x^2 - \frac{16}{x}$$

(a) Find $\frac{dy}{dx}$

$$\frac{dy}{dx} = \underline{\hspace{2cm}} \quad (3)$$



The graph shows part of the curve with equation $y = x^2 - \frac{16}{x}$

The point P is the turning point of the curve.

(b) Work out the coordinates of P .