

5. (a) The sides of the triangle ABC have lengths $BC = a$, $AC = b$ and $AB = c$, where $a < b < c$. The sizes of the angles A , B and C form an arithmetic sequence.

(i) Show that the area of triangle ABC is $ac \frac{\sqrt{3}}{4}$. (4)

Given that $a = 2$ and $\sin A = \frac{\sqrt{15}}{5}$, find

(ii) the value of b , (2)

(iii) the value of c . (4)

- (b) The internal angles of an n -sided polygon form an arithmetic sequence with first term 143° and common difference 2° .

Given that all of the internal angles are less than 180° , find the value of n . (5)