## Question 3

(25 marks)
$A B C$ is a triangle where the co-ordinates of $A$ and $C$ are $(0,6)$ and $(4,2)$ respectively.
$G\left(\frac{2}{3}, \frac{4}{3}\right)$ is the centroid of the triangle $A B C$.
$A G$ intersects $B C$ at the point $P$.
$|A G|:|G P|=2: 1$.
(a) Find the co-ordinates of $P$.
(b) Find the co-ordinates of $B$.


(c) Prove that $C$ is the orthocentre of the triangle $A B C$.

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