Assignment1

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Question No. 62: A line perpendicular to the line segment joining the points (1,0) and (2,3) divides it into the ratio 1:n. Find the equation of the line.

Solution: Let Coordinate of Point A = (1,0) and B = (2,3). Assume C will be the point there a line intersect the line segment AB. The coordinate of Point C will be $\frac{n+2}{n+1}, \frac{3}{n+1}$

Slope of line AB = $\frac{3-0}{2-1} = 3$

let slope of the line m. If two lines are perpendicular to each other their multiplication of slope = -1. Therefore, m = $\frac{-1}{3}$

equation of new line would be y=mx+c.i.e. $y = \frac{-1}{3}x + c$. The new line will pass through the point C. so, $c = \frac{3}{n+1} + \frac{1}{3}(\frac{n+2}{n+1})$

Therefore, the final equation of line will be $y = (\frac{-1}{3})x + \frac{3}{n+1} + \frac{1}{3}(\frac{n+2}{n+1})$.

NOTE: This is my first LaTex code.