

Name: Mounab Mohamed

Group: B20-04 variant: 4

P2. Two vertices of a triangle are $(4, -3)$ and $(-2, 5)$, if the orthocenter (intersection of altitudes) of the triangle is at $(1, 2)$. Find the coordinates of the third vertex.

answer: Slope of line perpendicular
on BC = $\frac{2 - (-3)}{1 - 4} = \frac{-5}{3}$

Slope of line perpendicular on AC = -1

Slope of BC = $\frac{5 - y}{(-2) - x}$

$$\frac{5 - y}{(-2) - x} \times \frac{-5}{3} = -1, \quad 5(y - 5) = 3(x + 2)$$

$$3x - 5y + 31 = 0$$