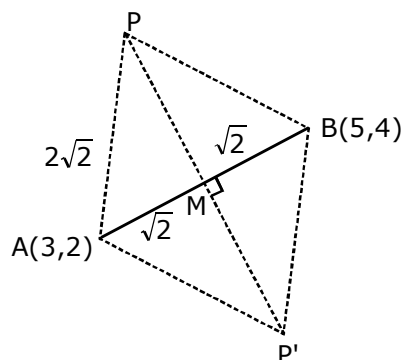


Sol.4 A,B

Mid point M (4, 3)



$$m = \frac{2}{2} = 1$$

$$m_{PQ} = -1$$

$$AB = \sqrt{2^2 + 2^2} = 2\sqrt{2}$$

$$\frac{PM = \sqrt{6}}{\text{line } pp'}$$

$$\frac{x-4}{\frac{1}{\sqrt{2}}} = \frac{y-3}{\frac{1}{\sqrt{2}}} = \pm \sqrt{6}$$

$$x = 4 \pm \sqrt{3} \quad y = 3 \pm \sqrt{3}$$

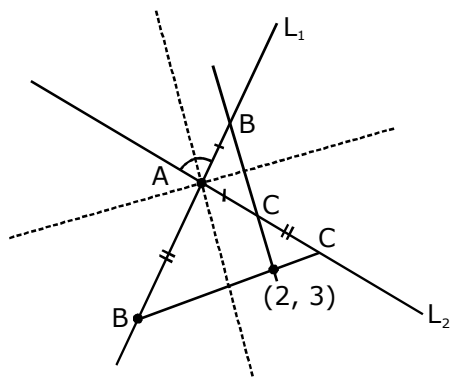
$$x = 4 \pm \sqrt{3}, y = 3 \pm \sqrt{3}$$

$$(4 + \sqrt{3}, 3 - \sqrt{3}) \text{ \& } (4 - \sqrt{3}, 3 + \sqrt{3})$$

Sol.5 A,B

$$L_1 : 2x + y = 5$$

$$L_2 : x - 2y = 3$$



Line BC passing through (2, 3)

$$(y - 3) = m(x - 2)$$

m is equal to slope of

$$\frac{2x + y - 5}{\sqrt{2^2 + 1}} = \pm \frac{x - 2y - 3}{\sqrt{1 + 2^2}}$$

$$\Rightarrow 2x + y + 2y = 5 + 3$$

A/B² are

$$x + 3y = 2 \Rightarrow m = -\frac{1}{3}$$

$$\& 3x - y = 8 \Rightarrow m = 3$$

BC line

$$y - 3(x - 2) \Rightarrow 3x - y = 3$$

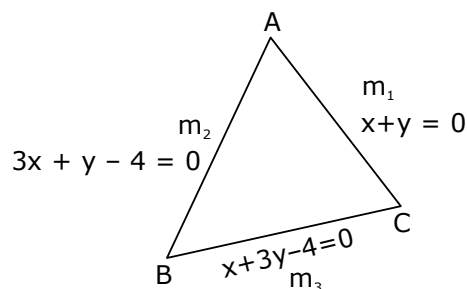
$$\& y - 3 = -\frac{1}{3}(x - 2) \Rightarrow x + 3y = 11$$

Sol.6 A,C

$$L_1 : x + y = 0 \quad m_1 = -1$$

$$L_2 : 3x + y - 4 = 0 \quad m_2 = -3$$

$$L_3 : x + 3y - 4 = 0 \quad m_3 = -\frac{1}{3}$$



Slope is decreasing order

$$m_3 > m_1 > m_2$$

$$-\frac{1}{3} > -1 > -3$$

$$m_3 > m_1 > m_2$$

$$-\frac{1}{3} > -1 > -3$$

$$\tan C = \frac{m_3 - m_1}{1 + m_3 m_1} = \frac{-\frac{1}{3} + 1}{1 + \frac{1}{3}} = \frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$$

$$\tan A = \frac{m_1 - m_2}{1 + m_1 m_2} = \frac{-1 + 3}{1 + 3} = \frac{2}{4} = \frac{1}{2}$$

A = C & B is obtuse.

A = C & B is obtuse.

Obtuse isosceles triangle.