

Examine whether or not these pair of lines are perpendicular to each other

1) $y - 3x - 2 = 0$ and $3y + x + 9 = 0$
for lines to be perpendicular then $m_1 m_2 = -1$

Solution

$$y - 3x - 2 = 0$$

make y subject formula

$$y = 3x + 2$$

Recall $y = mx + c$

$$m_1 = 3$$

$$3y + x + 9 = 0$$

make y subject formula

$$3y + x + 9 = 0$$

$$3y = -x - 9$$

divide through by 3

$$y = -\frac{x}{3} - 3$$

$$y = -\frac{1x}{3} - 3$$

Recall $y = mx + c$

$$m_2 = -\frac{1}{3}$$

$$m_1 m_2 = -1 \text{ (for perpendicularity)}$$

$$m_1 \times m_2 = 3 \times -\frac{1}{3}$$

$$= -1$$

The lines $y - 3x - 2 = 0$ and $3y + x + 9 = 0$
are perpendicular