Question :

If the foot of perpendicular from the origin to a straight line is at the point (3,-4). Then the equation of the line is

1) 3x – 4y – 25=0

2) 3x – 4y = 25

3) 4x + 3y + 25 = 0

4) 4x + 3y - 25 = 0

Solution:

Let P be the foot of the perpendicular from origin to a straight line.

The slope of OP is = -4/3

As we know that ,$m_1 m_2$ = -1 for perpendicular line

Hence the slope of the straight line is 3/4.

It passes through the point (3, -4)

So required equation is $(y - y_1) = m(x - x_1)$

=> $(y + 4) = (¾)(x - 3)$

$4y + 16 - 3x + 9 = 0$

=> $3x - 4y - 25 = 0$

=> $3x - 4y = 25$

Hence option (2) is correct.