Answer on question #68630, Math / Other

Question Find the coordinates of the foot of the perpendicular from (-2,6) on the line 2x+3y-1=0

Solution Let us first find equation of line perpendicular to given line through given point. So we have line

$$2x + 3y - 1 = 0$$

$$y = -2/3x + 1/3$$

Obviously, slope of the perpendicular line will be 3/2. Then we can find the whole equation:

$$y = kx + b$$

by substituting given point:

$$6 = 3/2(-2) + b$$

$$b = 9$$

Hence, equation of perpendicular is

$$y = 3/2x + 9$$

Now we can find coordinates of point we need as common point of lines

$$y = -2/3x + 1/3$$

$$y = 3/2x + 9$$

So we find its coordinates:

$$-2/3x + 1/3 = 3/2x + 9$$

$$8\frac{2}{3} = 2\frac{1}{6}x$$

$$x = 4$$

$$y = 15$$

So answer is (4,15).