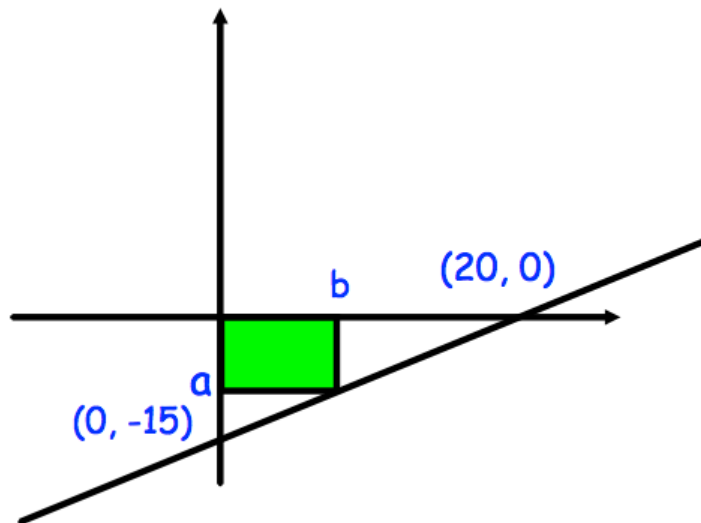


August 23rd



Intuition suggests that the maximum area is at the midpoint of $(0, -15)$ and $(20, 0)$ which is **$(10, -7.5)$** , which gives an area of **75**

To test this....

The equation of the line is $3x - 4y = 60$

Hence $3b - 4a = 60$

Therefore $b = 20 + \frac{4}{3}a$

So the area of the rectangle is given by

$$a\left(20 + \frac{4}{3}a\right) = 20a + \frac{4}{3}a^2$$

Completing the square

$$\frac{4}{3}(a + 7.5)^2 - 75$$

Which confirms that the maximum value of area occurs $a = -7.5$, and is 75