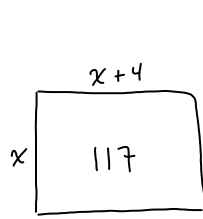


A few more examples

p 381 ||| - What are the dimensions? (length and width)



let x be the width
 $x+4$ be the length

$$\begin{aligned} \text{Area} &= lw \\ 117 &= (x+4)x \\ 117 &= x^2 + 4x \\ 0 &= x^2 + 4x - 117 \\ 0 &= (x+13)(x-9) \end{aligned}$$

Set each factor equal to zero:

$$x+13=0 \quad \text{and} \quad x-9=0$$

~~$x = -13$~~ $x = 9$
 not feasible

The width of the garden is 9m and length is 13m

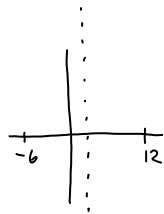
p 388 | Example 4

Let y be revenue: $y = (\# \text{ of plates})(\text{price per plate})$

Let x be the num of \$1 price increases: $y = (120 - 10x)(6 + x)$

Since this is factored already, we can easily find the x -intercepts and then vertex.

$$0 = (120 - 10x)(6 + x)$$



$$\begin{aligned} 120 - 10x &= 0 & 6 + x &= 0 \\ 120 &= 10x & \boxed{x} &= \boxed{-6} \\ \boxed{x} &= \boxed{12} & & \end{aligned}$$

axis of symmetry $x = \frac{12 + (-6)}{2}$
 $\boxed{x} = \boxed{3}$

This means that the price can be increased by 3 x \$1 increments or \$3 altogether

Best price = $6 + 3 = \boxed{\$9}$

plates sold = $120 - 10(3) = \boxed{90 \text{ plates}}$

max revenue is $90(9) = \boxed{\$810}$