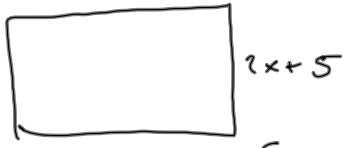length = 3(5.525) - 1 = 15.58
width = 2(5.525) + 5 = 16.05

$2x + 5$

$3x - 1$

$(2x + 5)(3x - 1) = 250$

$6x^2 - 2x + 15x - 5 = 250$

$6x^2 + 13x - 5 = 250$

$6x^2 + 13x - 255 = 0$

$a = 6 \qquad b = 13 \qquad c = -255$

$$\frac{-13}{2(6)} \pm \frac{\sqrt{13^2 - 4(6)(-255)}}{2(6)}$$

$-\frac{13}{12} \pm 6.609 \quad (+) \rightarrow \boxed{5.525} = x$

-1.083 ± 6.609

$(-) \rightarrow$ # Ans Not aSol.

$y = -0.026x(x - 46)$

$y = -0.026(x^2 - 46x)$

$0 = -0.026(x^2 - 46x)$

$y = -0.026x^2 + 1.196x$

$0 = -0.026x^2 + 1.196x$

$a = -0.026 \qquad b = 1.196 \qquad c = 0$

14. $-\frac{b}{2a} = 23$

$y = -0.026(23)(23 - 46)$

$y = 13.754$

$$\frac{-1.196}{2(-0.026)} \pm \frac{\sqrt{1.196^2 - 4(-0.026)(0)}}{2(-0.026)}$$

$\boxed{\frac{-1.196}{2(-.026)}} \pm \frac{1.196}{2(-.026)}$

23 ± -23

$(+) \rightarrow 0$

$(-) \rightarrow 46$

2)   Among all pairs of numbers whose sum is 100, find a pair whose product is as
      large as possible. (Hint: express the product as a function of x)

First # $= x$ $x + y = 100$

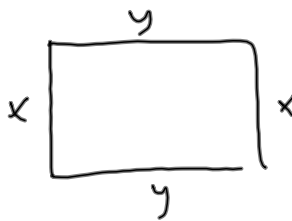Second # $= y = 100 - x$ $y = 100 - x$

$$P = x(100 - x)$$

$$P = 100x - x^2$$

$$a = -1 \quad b = 100 \quad c = 0$$

3)   Among all rectangles that have a perimeter of 20 feet, find the dimensions of the
      one with the largest area.

Width $= x$

length $= y = (10 - x)$

$A = x \cdot y$

$A = x(10 - x)$

$$x + y + x + y = 20$$

$$2x + 2y = 20$$

$$2y = 20 - 2x$$

$$y = 10 - x$$

4) Find the area of the largest rectangle that can be inscribed in a right triangle with legs of lengths 3 cm and 4 cm if two sides of the rectangle lie along the legs as shown in the figure. (Hint: set the triangle with the right angle at the origin of a graph and write the equation of the line containing the hypotenuse)

$(0,3)$

$(x, -\frac{3}{4}x+3)$

$y = -\frac{3}{4}x + 3$

3cm

$-\frac{3}{4}x+3$

4cm

$(4,0)$

x