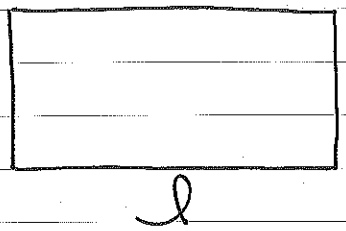
Inv. 1.3

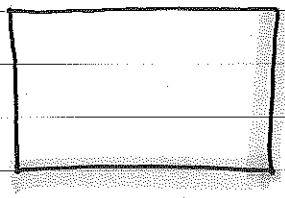


$A = lw$

$P = 2(l+w)$

$\frac{P}{2} = (l+w)$

(1) Perimeter of 60 units

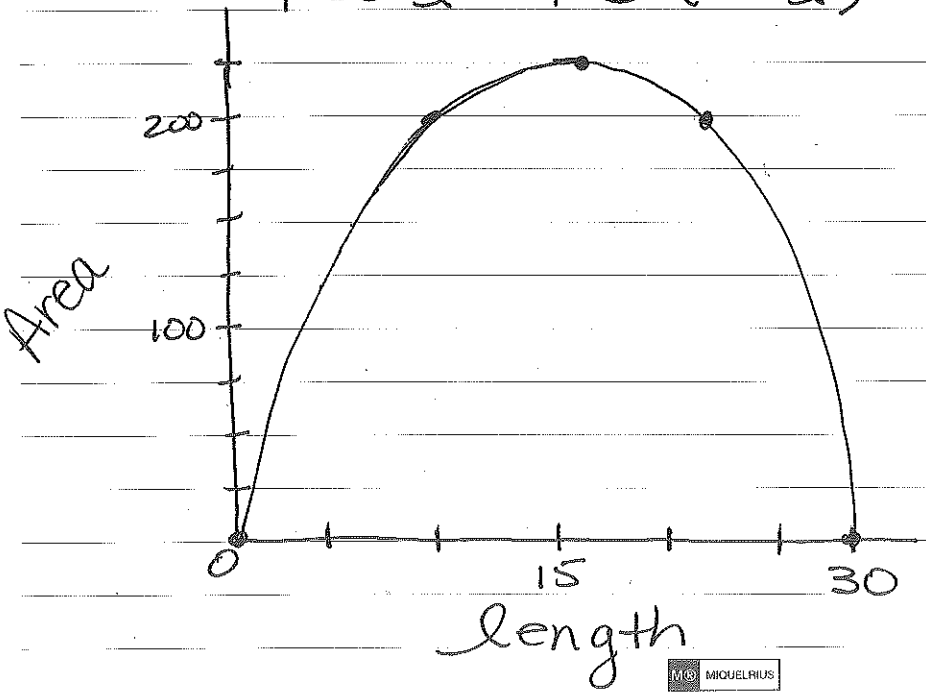


adds up to 30

l	w		area
5	25	(30-5)	125
10	20	(30-10)	200
15	15	(30-15)	225
20	10	(30-20)	200
25	5	(30-25)	125
l	30-l		l(30-l)

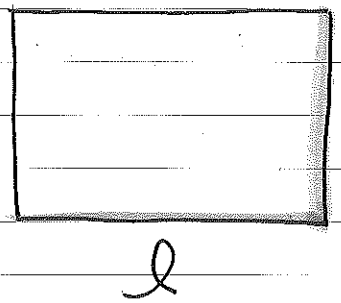
Maximum Area 225

x-intercepts 0 and 30



Perimeter of 80

(2) Draw a rectangle. Label each side of the rectangle in terms of l.



$l + w = 40$

$w = 40 - l$

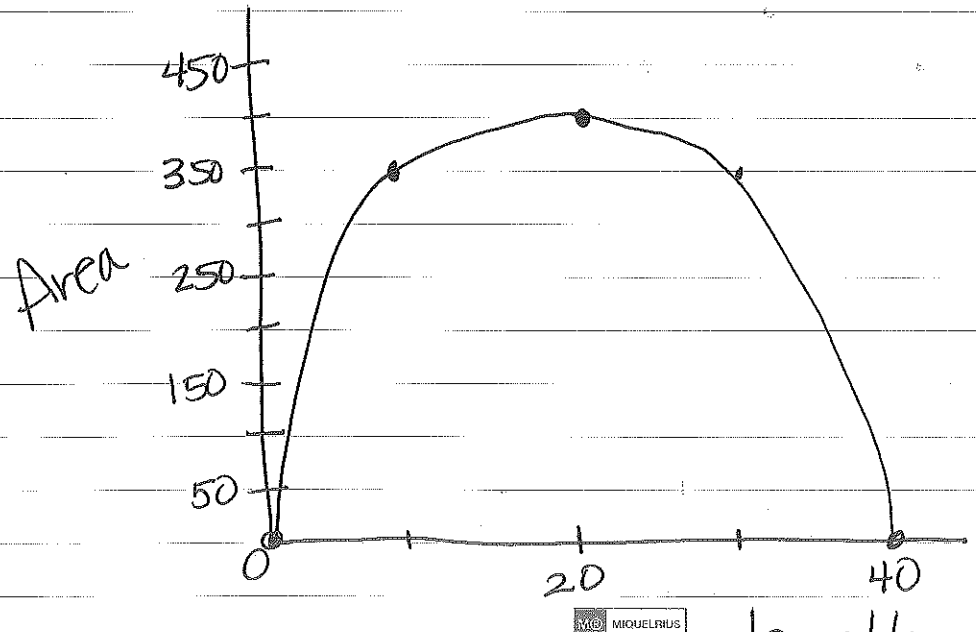
$\text{Area} = l(40-l)$

or $40l - l^2$

l	Area
0	0
5	175
10	300
15	375
20	400
25	375
40	0
35	175
30	300

Maximum Area
400
(20 by 20)

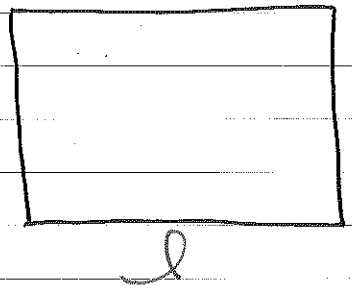
x-intercepts 0 and 40



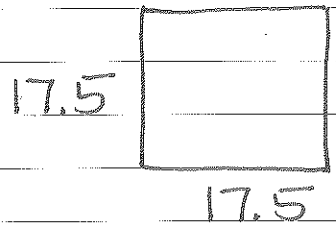
(3) The equation for the areas with a certain fixed perimeter is:

$$A = \ell(35 - \ell)$$

Label a rectangle



Maximum Area



$A = 306.25$ un^2

Fixed Perimeter

70 units

x-intercepts 0 and 35