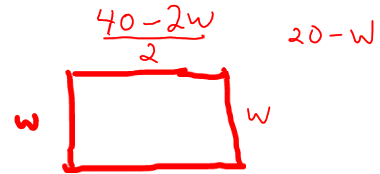


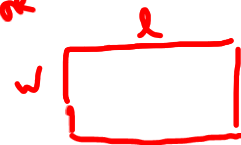
Max/Min

A gardener has 40m of fencing to enclose her rectangular garden. What shape should her enclosure be to enclose the greatest possible area and what is that area?

$$\begin{aligned}
 A &= l \cdot w \\
 &= w(20-w) \\
 A &= 20w - w^2 \\
 \frac{dA}{dw} &= 20 - 2w \\
 0 &= 20 - 2w \\
 10 &= w
 \end{aligned}$$



$$\begin{aligned}
 \text{or} \\
 P &= 2w + 2l \\
 40 &= 2w + 2l \\
 20 &= w + l \\
 l &= 20 - w
 \end{aligned}$$



critical values zeroes
10

interval
 $0 < w < 20$ $(0, 20)$

$$A(10) = 100$$

$$A(0) = 0$$

$$A(20) = 0$$

She should use a 10×10 m square
or 100 m^2

pg. 226
3, 7, 9