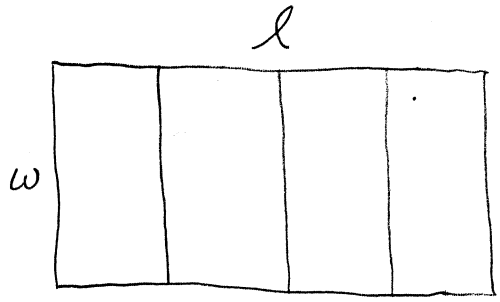
2 points extra credit...

A farmer has 600 ft of fencing to make a rectangular pen subdivided into four smaller, equal-sized rectangular pens that are side-by-side and share common sides. Find the dimensions of the pen that maximize its area.



$2\ell + 5\omega = 600$

MAXIMIZE $A = \ell\omega$

$\ell = \frac{1}{2}(600 - 5\omega)$

$A = \frac{1}{2}(600 - 5\omega)\omega$

ZEROS OF A ARE...

$600 - 5\omega = 0$ $\qquad \omega = 0$

$\Downarrow$

$\omega = \frac{600}{5} = 120$

VERTEX IS AT $\omega = 60$

$\omega = 60$

$\ell = \frac{1}{2}(600 - 5(60))$

$= 150$

DIMENSIONS THAT MAXIMIZE AREA ARE

$\ell = 150$ FT

$\omega = 60$ FT