Bellwork Hon Alg 2 Tuesday, November 15, 2016

1. A farmer has 400 feet of fencing to create a rectangular enclosure. He will put some fenced dividers in the retangular enclosure to make three equally sized pens. One side of this rectangular enclosure will be an existing fence. Find the dimensions of this rectangular enclosure that will maximize the area of the three pens.

Dimensions are:

2. A popular designer purse sells for $500 and 45,000 are sold a month. The company did some research and realized that for each $20 decrease in price, they can sell 5000 more purses per month. How much should the company charge for the purse so they can maximize monthly revenues?

Price to charge:

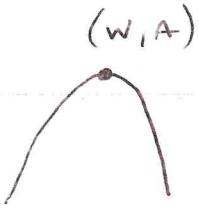
Bellwork Hon Alg 2 Tuesday, November 15, 2016 ANSWERS

1. A farmer has 400 feet of fencing to create a rectangular enclosure. He will put some fenced dividers in the retangular enclosure to make three equally sized pens. One side of this rectangular enclosure will be an existing fence. Find the dimensions of this rectangular enclosure that will maximize the area of the three pens.

Vertex!

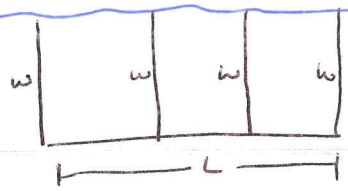
Dimensions are:

50 x 200



$400 = 4w + L$

$L = 400 - 4w$



$A = L \cdot W = (400 - 4w)(w) = 400w - 4w^2$

LOS: $w = \frac{-400}{2(-4)} = 50$ $L = 400 - 4(50) = 400 - 200 = 200$

2. A popular designer purse sells for $500 and 45,000 are sold a month. The company did some research and realized that for each $20 decrease in price, they can sell 5000 more purses per month. How much should the company charge for the purse so they can maximize monthly revenues?

Price to charge:

$340

$x = \#$ of $20 decreases

Revenue = (# purses SOLD)($ per purse)

$= (45{,}000 + 5000x)(500 - 20x)$

$= -100{,}000x^2 + 1{,}600{,}000x + 22{,}500{,}000$

LOS: $x = \frac{-1{,}600{,}000}{-200{,}000} = 8$

Final Price

$500 - 20(8)$

$= \$340$