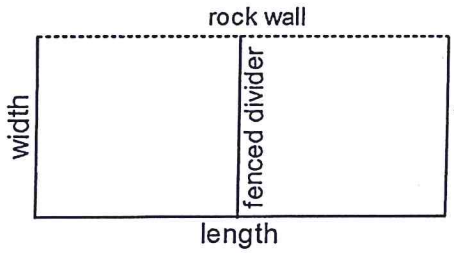
Algebra 2 Bellwork Tuesday, November 17, 2015

1. A farmer has 2400 feet of fencing to create a rectangular enclosure to secure his cows and sheep. One side of the enclosure will use an exisiting rock wall. To keep the cows and sheep separated some of the fencing will be used to create a divider inside the rectangle making two equally sized enclosures (see the diagram). What overall dimensions will maximize the area of the rectangular enclosure?

Length = Width =



Factor each completely.

2. $\frac{1}{6}x^2 - \frac{1}{2}x - \frac{14}{3}$

3. $3M^5 - 12M^3 - 135M$

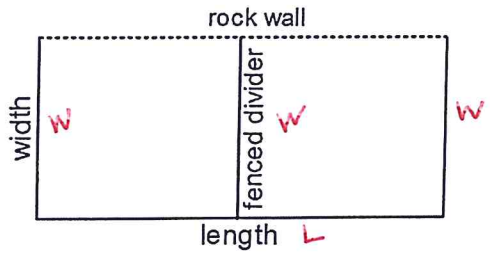
4. $E^2 + 14EF + 49F^2$

5. $243A^5 - 48A$

Algebra 2 Bellwork Tuesday, November 17, 2015 Answers

1. A farmer has 2400 feet of fencing to create a rectangular enclosure to secure his cows and sheep. One side of the enclosure will use an exisiting rock wall. To keep the cows and sheep separated some of the fencing will be used to create a divider inside the rectangle making two equally sized enclosures (see the diagram). What overall dimensions will maximize the area of the rectangular enclosure?

Length = 1200 Width = 400



$2400 = 3W + L$

$L = 2400 - 3W$

$L = 2400 - 3(400)$

$= 1200$

$A = L \cdot W$

$A = (2400 - 3W)W$

$A = 2400W - 3W^2$

(W, A)

$W \text{ at max} = \frac{-b}{2a} = \frac{-2400}{-6} = 400$

Factor each completely.

2. $\frac{1}{6}x^2 - \frac{1}{2}x - \frac{14}{3}$

$\frac{1}{6}(x^2 - 3x - 28) = \frac{1}{6}(x-7)(x+4)$

3. $3M^5 - 12M^3 - 135M = 3M(M^2+5)(M \pm$

$3M(M^4 - 4M^2 - 45)$

$3M(M^2 - 9)(M^2 + 5)$

4. $E^2 + 14EF + 49F^2$

$(E + 7F)^2$

5. $243A^5 - 48A$

$3A(81A^4 - 16)$

$3A(9A^2 - 4)(9A^2 + 4)$

$3A(3A \pm 2)(9A^2 + 4)$