Name Key Date

Algebra II – Review Module 1, LC 1

Write each polynomial in standard form. Then classify it by degree and by number of terms.

1. $4x + x + 2$

$5x+2$, Linear binomial

2. $1 - 2s + 5s^3$

$5s^3 - 2s + 1$

cubic, trinomial

3. $(7x^2 + 8x - 5) + (9x^2 - 9x)$

$16x^2 - 1x - 5$

Quadratic, trinomial

4. $(5x^3 - 6x + 8) - 1(3x^3 - 9)$

$5x^3 - 6x + 8 - 3x^3 + 9$

$2x^3 - 6x + 17$

Cubic, trinomial

5. $(3x + 1) - 1(3x + 2)$

$3x + 1 - 3x - 2$

-1

Constant, monimial

6. $x(x^3 - 2x + 1)$

$x^4 - 2x^2 + x$

Quartic

trinomial

7. $(2x + 3)(3x - 6)$

$2x(3x-6) + 3(3x-6)$

$6x^2 - 12x + 9x - 18$

$6x^2 - 3x - 18$

trinomial, cubic

8. $(4x - 1)(2x^2 - 5x - 7)$

$4x(2x^2 - 5x - 7) - 1(2x^2 - 5x - 7)$

$8x^3 - 20x^2 - 28x - 2x^2 + 5x + 7$

$8x^3 - 22x^2 - 23x + 7$

Cubic 4 term Poly

9. $(x + 3)^2(4x - 6)$

$4x^3 + 18x^2 - 54$

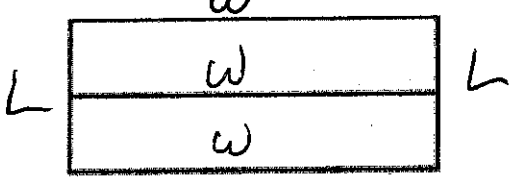
$(x+3)(x+3)(4x-6)$

$(x^2+6x+9)(4x-6)$

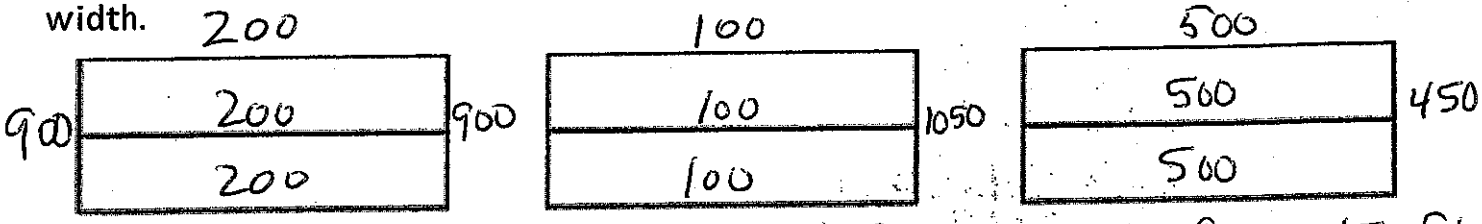
$4x(x^2+6x+9) - 6(x^2+6x+9)$

$4x^3 + 24x^2 + 36x - 6x^2 - 36x - 54$

10. A farmer has 2,400 feet of fencing and wants to fence off a rectangular pen to hold some of his animals for grazing. This time the farmer wants to use his fencing to build two compartments by placing fencing down the middle of the rectangular perimeter, as shown.



a). Label the three possible rectangular pens (below) that can be used for his animals using all of his 2400 feet of fencing. State the dimensions of each rectangle in terms of length and width.



200 ft x 900 ft

100 ft x 1050 ft

500 ft x 450 ft

b). Define the width and length in terms of the width and write a mathematical function for the total area.

width: x

length: $\frac{2400}{2} - \frac{3x}{2} = 1200 - 1.5x$

$A(x) = x(1200 - 1.5x)$

c). State the contextual domain of the function in question (b).

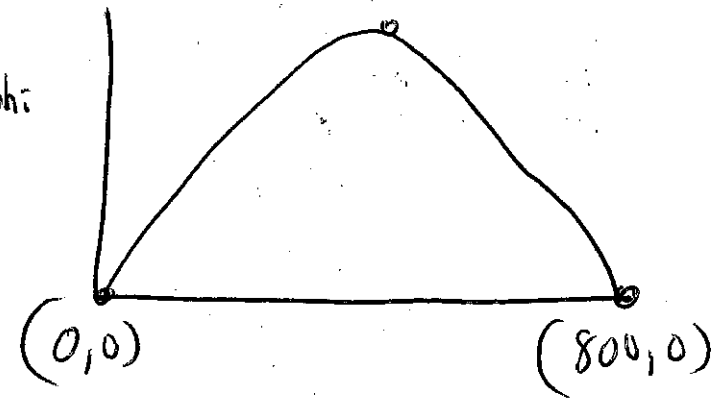
$0 < x < 800$

d). Fill in the two – column table with values where the first column are values of the width of the pen and the second column are values of the two – compartment area. Make sure you give units to the values in these two columns.

(400, 240,000)

Width	Area
400	240,000
500	225,000
300	225,000

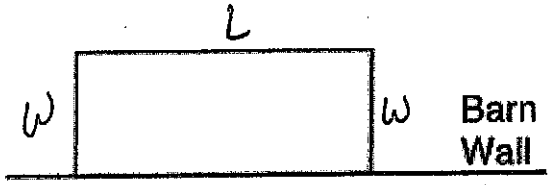
Graph:



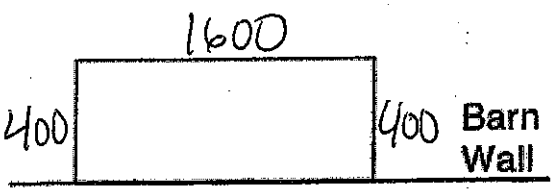
e). What are the dimensions of the best possible two compartment pen that the farmer can construct for grazing for his animals? 400 ft x 600 ft = 240,000 ft²

f). Explain and justify your answer. 400 is between 300 and 500 which has same area of 225,000. 400 area is greater than 225,000. (240,000).

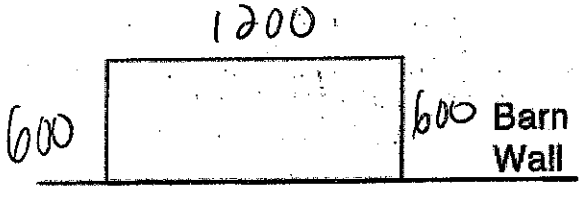
11. A farmer has 2,400 feet of fencing and wants to fence off a rectangular pen to hold some of his animals for grazing, but one side is against the barn, as shown below.



a). Label the two possible rectangular pens (below) that can be used for his animals using all of his 2400 feet of fencing. State the dimensions in terms of length and width.



400ft x 1600ft



~~600 ft x 600~~

600 ft x 1200 ft

b). Define the width and length in terms of the width and write a mathematical function for the total area. width: x

length: $2400 - 2x$

$A(x) = x(2400 - 2x)$

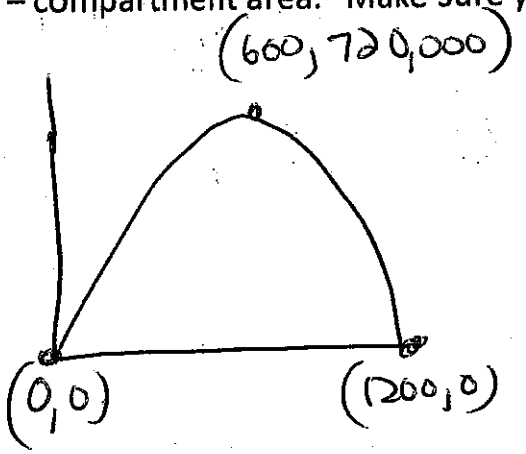
c). State the contextual domain of the function in question (b).

$0 < x < 1200$

d). Fill in the two – column table with values where the first column are values of the width of the pen and the second column are values of the two – compartment area. Make sure you give units to the values in these two columns.

Width	Area
500	700,000
600	720,000
700	700,000
800	640,000
900	
400	640,000

Graph:



e). What are the dimensions of the best possible two compartment pen that the farmer can construct for grazing for his animals? 600 ft × 1200 ft = 720,000

f). Explain and justify your answer 600 ft is between 500 and 700 whose area is 700,000 which less than 600 ft area (720,000)

12).

Express each polynomial function in standard form. Then, determine the degree (Deg), the constant term (Con), the linear term (LiT), the quadratic term (QT), and the leading term (LeT) of each of the following polynomials.

Function	Standard Form of Function	Deg	Con	LIT	QT	LeT
$g(x) = (4x^3 - 8x^2 - 2) - (-3x^2 + 4)$ $4x^3 - 8x^2 - 2 + 3x^2 - 4$	$4x^3 - 5x^2 - 6$	Cubic	-6	None	$-5x^2$	$4x^3$
$f(x) = (5x^3 - x - 2x^2 + 7) + (4x^2 - 8 - x^3)$	$4x^3 + 2x^2 - x - 1$	Cubic	-1	$-x$	$2x^2$	$4x^3$