MFM 2P Mrs. Roen Name: _____

Course: MFM2P Gr. 10 Applied **Lesson: 6-6**

Unit: Quadratic Expressions **Topic: Multiplying Binomials**

- ***homework check:*** **Lesson 6 - 5**

- ***note:*** **Multiplying Binomials**

To multiply one binomial by another, we can use distributive property. Recall that distributive property states that each term in the first binomial multiplies by each term in the second binomial. For example,

a)

$(x+2)(x+3) =$ distribute the x and 2 through the brackets

$= x(x+3) + 2(x+3)$

$= x^2 + 3x + 2x + 6$ collect like terms

$= x^2 + 5x + 6$

b)

$(2x+3)(x-2) =$ distribute the 2x and 3 through the brackets

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

$= 2x^2 - 4x + 3x - 6$ collect like terms

$= 2x^2 - x - 6$

We can use the distributive property to establish a multiplication pattern to follow each time we are asked to multiply two binomials. For instance, we distribute in a pattern that follows the word "FOIL" – first terms, outer terms, inner terms, and last terms of the brackets. For example,

c)

$(x-3)(x+7) =$

$= x^2 + 7x - 3x - 21$

$= x^2 + 4x - 21$

d)

$(3x-5)(x+2) =$

$= 3x^2 + 6x - 5x - 10$

$= 3x^2 + x - 10$

e)

$(2x+3)^2 =$ use meaning of exponent to write brackets twice (squared)

$= (2x+3)(2x+3)$

$= 4x^2 + 6x + 6x + 9$

$= 4x^2 + 12x + 9$

- ***homework assignment:*** **<u>Lesson 6 - 6</u>**

MFM 2P Mrs. Roen Name: _____

Lesson 6 – 6: Multiplying Binomials **Mark (/39): _____**

1. Expand and Simplify. (6 marks)

a) $(2x+1)(3x+7) =$

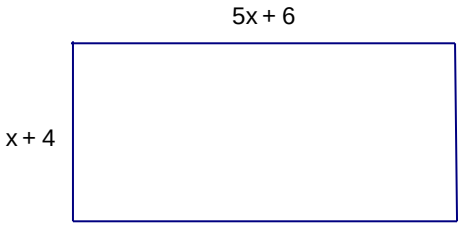
b) $(3x-4)(3x+5) =$

2. Expand and Simplify. (6 marks)

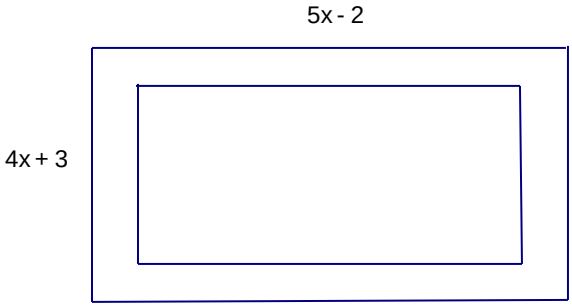
a) $(x+5)^2 =$

b) $(2x-3)^2 =$

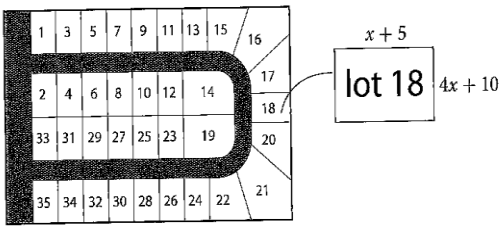
3. Write and simplify the quadratic expression for the area of the yard shown. (3 marks)



4. A tennis club designs a new court with a surrounding space for benches as shown in the diagram. Write an expression for the perimeter of the court. (3 marks)



5. A builder is developing a site for a new subdivision. Dmitri plans to buy lot 18. (5 marks)



a) Find and expression to represent the area of lot 18.

b) If $x = 35\,ft.$, find the actual area of lot 18.

6. A skatepark is $x+3$ units wide and $2x-6$ units long. (7 marks)

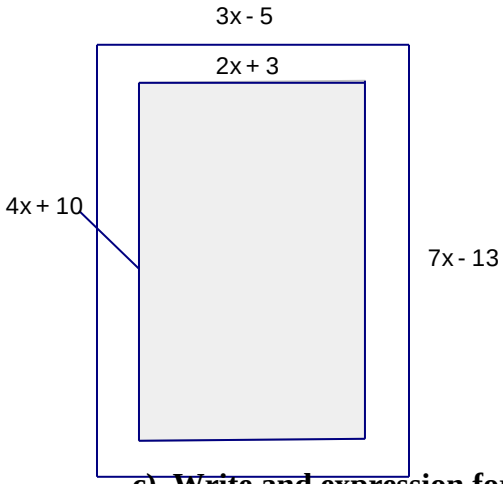
a) Write an expression for the area of the park.

b) If $x = 11m$, calculate the actual area of the park.

c) If concrete surfacing costs \$4.99/m^2, calculate the cost of the park.

7. A photography student wishes to place a border around a picture before framing.

a) Write and expression for the area of the picture. (3 marks)



b) Write and expression for the area of the frame. (3 marks)

c) Write and expression for the area of the white border. (3 marks)