Name: _____ Date: _____

Multiplying Polynomials

UNIT QUESTION: In what ways can algebraic methods be used in problems solving? (Standard: MCC9-12.N.RN.1-3, N.CN.1-3, A.APR.1)

Today's Question: What methods can we use to multiply polynomials? (MCC9-12.A.APR.1)

When multiplying polynomials, use the Distributive **property!!!**

Examples:

1. $5(x+6)$ $= 5x+30$

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

x^3+6x^2

* When multiplying variables add exponents

3. $(-2x)(x^2-4x^1+2)$

$-2x^3+8x^2-4x$

4. $(x-2)(x+4)$

$x^2+4x-2x-8$

x^2+2x-8

- FACTORS
- Double Distribution
- Check for like terms

5. $(x+9)(x-3)$

$x^2-3x+9x-27$

$x^2+6x-27$

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

$x^2-3x+3x-9$

x^2-9

- Difference of SQUARES

7. $(2x+5)(x+6)$

$2x^2+12x+5x+30$

$2x^2+17x+30$

8. $(3x-1)(2x-4)$

$6x^2-12x-2x+4$

$6x^2-14x+4$

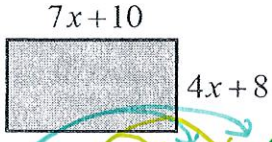
9. $(5b-6)(3b^2-2b+5)$

$15b^3-10b^2+25b-18b^2+12b-30$

$15b^3-28b^2+37b-30$

- Distribute/Multiply the 2 binomial

10. $A = l \times w$

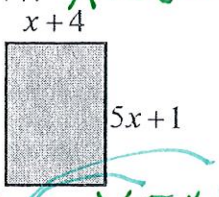


$(7x+10)(4x+8)$

$28x^2+56x+40x+80$

$28x^2+96x+80$

11. $A = l \times w$

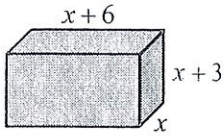


$(x+4)(5x+1)$

$5x^2+x+20x+4$

$5x^2+21x+4$

12. $V = l \times w \times h$



$(x+6)(x+3)$

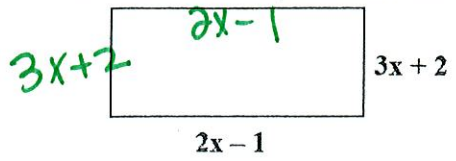
$x^2+3x+6x+18$

$x(x^2+9x+18)$

x^3+9x^2+18x

Application Problems:

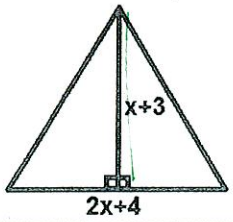
11. Write an expression for the perimeter and area of the following rectangle.



P: $10x+2$

A: $(3x+2)(2x-1)$

12. Write an expression for the area of the triangle.

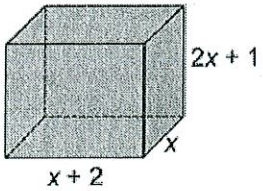


$A = \frac{1}{2}bh$

$= \frac{1}{2}(x+3)(2x+4)$

$= \frac{1}{2}(\qquad)$

13. Write an expression for the volume of the rectangular prism.



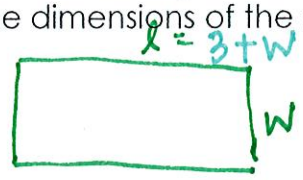
$V = l \times w \times h$

$= (2x+1)(x+2)$

$= x(\qquad)$

14. The length of a rectangle is 3 inches greater than the width.

A. Sketch and label the dimensions of the rectangle.



B. Write a polynomial that represents the area of the rectangle.

$w(3+w)$

C. Find the area of the rectangle when the width is 4 inches. Substitute for w