

Lesson 1.1 – Polynomials: Adding & Subtracting, Multiplying & Expanding

I. Warm-up: Combining Like Terms & Writing Algebraic Expressions
 (See Background Knowledge pages 5-9 in the Red 9/10 textbook)

1. Simplify, where possible, by collecting like terms:

a. $3a + 4a =$

b. $11b - b =$

c. $5 + x + 2 =$

d. $2ab + 3ab =$

e. $3x^2 + 2x =$

Writing Expressions in Math		
<i>Word</i>	<i>Meaning</i>	<i>Symbol</i>
sum		
difference		
product		
quotient		
mean		

2. Write a mathematical expression for the following written expressions:

a. The sum of 6 and $a =$

b. The difference between c and d , where $d > c =$

c. The mean of p, q , and $r =$

3. Convert the following phrases into mathematical form:

a. 18 more than a number

b. 7 less than a number

c. Double a number

d. Double the sum of a number and 7

III. Multiplying & Expanding Polynomials

(See Section 3A/3B pg. 50-53 in Red 9/10 Book)

Apply the distributive property on the product $(a + b)(c + d)$

Expand and simplify:

a. $(x + 4)(x - 3)$

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

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

d. $(3x - 2)(3x + 2)$

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

f. $(3 - 4y)^2$

g. $(x + 3)(x^2 + 2x + 4)$

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

FOIL Method

$$(a + b)(c + d)$$

Differences of Squares Pattern

$$(a + b)(a - b)$$

Perfect Square Pattern

$$(a + b)^2$$

IV. Practice on Your Own

Multiply and simplify the following expressions.

1. $(4x - 6)(4x + 7)$

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

3. $(5x + 6)^2$

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

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

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

7. Given that

$$P(x) = 3x^3 - 5x - 4, \quad Q(x) = x^2 + 2x + 2, \quad R(x) = x^3 - 6$$

Then evaluate

a. $P + Q =$

b. $R(P + Q) =$