ALGEBRAIC EXPRESSIONS

52. EVALUATING AN EXPRESSION

To evaluate an algebraic expression, **plug in** the given values for the unknowns and calculate according to PEMDAS. To find the value of $x^2 + 5x - 6$ when $x = -2$, plug in -2 for x:

$$(-2)^2 + 5(-2) - 6 = 4 - 10 - 6 = -12.$$

53. ADDING AND SUBTRACTING MONOMIALS

To combine like terms, **keep the variable part unchanged while adding or subtracting the coefficients.** $2a + 3a = (2 + 3)a = 5a$

54. ADDING AND SUBTRACTING POLYNOMIALS

To add or subtract polynomials, **combine like terms.**

$$(3x^2 + 5x - 7) - (x^2 + 12) =$$
$$(3x^2 - x^2) + 5x + (-7 - 12) = 2x^2 + 5x - 19$$

55. MULTIPLYING MONOMIALS

To multiply monomials, **multiply the coefficients and the variables separately.**

$$2a \times 3a = (2 \times 3)(a \times a) = 6a^2$$

56. MULTIPLYING BINOMIALS—FOIL

To multiply binomials, use **FOIL.** To multiply $(x + 3)$ by $(x + 4)$, first multiply the **F**irst terms: $x \times x = x^2$. Next the **O**uter terms: $x \times 4 = 4x$. Then the **I**nner terms: $3 \times x = 3x$. And finally the **L**ast terms: $3 \times 4 = 12$. Then add and combine like terms: $x^2 + 4x + 3x + 12 = x^2 + 7x + 12$.

57. MULTIPLYING OTHER POLYNOMIALS

FOIL works only when you want to multiply two binomials. If you want to multiply polynomials with more than two terms, make sure you **multiply each term in the first polynomial by each term in the second.**

$$(x^2 + 3x + 4)(x + 5) =$$
$$x^2(x + 5) + 3x(x + 5) + 4(x + 5) =$$
$$x^3 + 5x^2 + 3x^2 + 15x + 4x + 20 =$$
$$x^3 + 8x^2 + 19x + 20$$