Objectives:

- Identify the terms and coefficients of algebraic expressions.
- Simplify algebraic expressions.
- Evaluate algebraic expressions by substituting values for variables.
- Translate verbal phrases into algebraic expressions, and visa versa.

\[12b - [9 - 7(5b - 6)] = ?? \quad \text{if} \quad b = -3\]
EXAMPLE: Simplify these.

a) \(-5x + 4 - 7x + 9\)

b) \(3xy^2 - x^2 + y - 5xy^2 + 2\)

c) \(3a(a^2 - 5) + a^2(a - 1)\)

d) \(4[3(2y-1) + 5(2y^2 - y + 1)]\)

EXAMPLE: Evaluate these expressions when \(x = 6\) and \(y = -3\).

a) \(\frac{3}{2}x - 2 = \)

b) \(\frac{2x + y}{x} = \)

c) \(y^2 - x\)
CONSTRUCTING EXPRESSIONS

See box on page 41 of text for suggestions.

3. EXAMPLE: Write an expression for each of these.
(Even problems from text)

a) (#6) Fifteen decreased by 3 times a number, n.

b) (#8) The product of a number, y and 10 is decreased by 35.

c) (#22) The absolute value of the quotient of a number, n and 4.

d) (#46) The amount of money (in cents) represented by m dimes and q quarters.

MORE EXAMPLES: Write an expression for these.

a) (#52) The amount of water in q quarts of a food product that is 65% water.

b) (#62) The sum of two consecutive even integers, the first of which is 2n.

c) (#68) Express the area of this triangle.