MATH 1010 ~ Intermediate Algebra   Chapter 1 Fundamentals of Algebra

Section 1.4, 1.5 : Algebraic Expressions

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.

$$12b-[9-7(5b-6)] = \;?? \quad \text{if } b = -3$$

ALGEBRAIC EXPRESSIONS

$$3xy^2-7x+8y-5$$

Vocabulary:

variable

constant

expression

algebraic expression

coefficient

terms

① 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) $4[3(2y-1) + 5(2y^2 - y + 1)]$

② 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.

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④ 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.

h

4/5 h + 12