ASSIGNMENT 2

DYLAN ZWICK'S MATH 1010 CLASS

SECTION 1.4 - ALGEBRAIC EXPRESSIONS

Identify the terms and coefficients of the algebraic expression:

1.4.1: $10x + 5$

1.4.4: $-16t^2 + 48$

1.4.5: $-3y^2 + 2y - 8$

1.4.8: $25z^3 - 4.8z^2$

1.4.11: $xy - 5x^2y + 2y^2$

Date: Due Wednesday, September 9th.

Identify the property of algebra illustrated by the statement:

1.4.15: $4 - 3x = -3x + 4$

1.4.19: $(5 - 2)x = 5x - 2x$

Use the indicated property to rewrite the expression:

1.4.22: Distributive Property

$6x + 6 =$

Simplify the expressions by combining like terms:

1.4.25: $3x + 4x$

1.4.29: $7x - 11x$

1.4.33: $3x - 2y + 5x + 20y$

1.4.36: $9y + y^2 - 6y$

1.4.39: $x^2 + 2xy - 2x^2 + xy + y$

Use the Distribution Property to simplify the expressions:

1.4.41: $4(2x^2 + x - 3)$

1.4.42: $8(z^3 - 4z^2 + 2)$

1.4.46: $-(-5t^2 + 8t - 10)$

1.4.49: $3x(17 - 4x)$

Simplify the expression:

1.4.53: $10(x - 3) + 2x - 5$

1.4.58: $7x - (2x + 5)$

1.4.62: $x(x^2 - 5) - 4(4 - x)$

1.4.65: $9a - [7 - 5(7a - 3)]$

1.4.69: $8x + 3x[10 - 4(3 - x)]$

1.4.72: $5[3(z + 2) - (z^2 + z - 2)]$

Evaluate the expression for the specified values of the variable(s). If not possible, state the reason:

1.4.73: $5 - 3x$

(a) $x = \dfrac{2}{3}$

(b) $x = 5$

1.4.75: $10 - 4x^2$

   (a) $x = -1$

   (b) $x = \dfrac{1}{2}$

1.4.79: $\dfrac{1}{x^2} + 3$

   (a) $x = 0$

   (b) $x = 3$

1.4.81: $3x + 2y$

   (a) $x = 1, y = 5$

   (b) $x = -6, y = -9$

1.4.84: $y^2 + xy - x^2$

   (a) $x = 5, y = 2$

   (b) $x = -3, y = 3$

1.4.85: $\dfrac{x}{y^2 - x}$

   (a) $x = 4, y = 2$

   (b) $x = 3, y = 3$

1.4.88: $|x^2 - y|$

   (a) $x = 0, y = -2$

   (b) $x = 3, y = -15$

Evaluate the expression $0.01p + 0.05n + 0.10d + 0.25q$ to find the value of the given number of pennies p, nickels n, dimes d,and quarters q:

1.4.97: 43 pennies, 27 nickels, 17 dimes, 15 quarters

SECTION 1.5 - CONSTRUCTING ALGEBRAIC EXPRESSIONS

Translate the verbal phrase into an algebraic expression:

1.5.1: The sum of 23 and a number n

1.5.5: Six less than a number n

1.5.7: Four times a number n minus 10

1.5.12: The ratio of y and 3

1.5.16: The number u is tripled and the product is increased by 250

1.5.19: The sum of a number and 5, divided by 10

Write a verbal description of the algebraic expression without using the variable:

1.5.25: $t - 2$

1.5.28: $2y + 3$

1.5.30: $7y - 4$

1.5.33: $\dfrac{4}{5}x$

1.5.37: $\dfrac{x + 10}{3}$

Write an algebraic expression that represents the specified quantity in the verbal statement,and simplify if possible:

1.5.41: The amount of money (in dollars) represented by n quarters

1.5.45: The amount of money (in cents) represented by m nickels and n dimes

1.5.47: The distance traveled in t hours at an average speed of 55 miles per hour

1.5.50: The average rate of speed when travelling 320 miles in t hours

1.5.51: The amount of antifreeze in a cooling system containg y gallons of coolant that is 45% antifreeze

1.5.55: The sale price of a coat that has a list price of L dollars if it is a "20 % off" sale

1.5.57: The total hourly wage for an employee when the base pay is $8.25 per hour plus 60 cents for each of q unit produced per hour

1.5.59: The sum of a number n and five times the number

1.5.62: The sum of three consecutive even integers, the first of which is $2n$

Section 2.1 - Linear Equations

Determine whether each value of the variable is a solution of the equation:

2.1.1: $3x - 7 = 2$

  (a) $x = 0$

  (b) $x = 3$

2.1.2: $5x + 9 = 4$

  (a) $x = -1$

  (b) $x = 2$

2.1.4: $10x - 3 = 7x$

  (a) $x = 0$

  (b) $x = -1$

Identify the equation as a conditional equation, an identity, or an equation with no solution:

2.1.7: $6(x + 3) = 6x + 3$

2.1.9: $\dfrac{2}{3}x + 4 = \dfrac{1}{3}x + 12$

Determine whether the two equations are equivalent. Explain your reasoning;

2.1.13: $3x = 10, 4x = x + 10$

2.1.15: $x + 5 = 12, 2x + 15 = 24$

2.1.17: $3(4 - 2t) = 5, 12 - 6t = 5$

2.1.20: $6 - 5x = -4, x = -4$

Solve the equation. If there is exactly one solution, check your answer. If not, describe the solution:

2.1.23: $3x - 12 = 0$

2.1.25: $6x + 4 = 0$

2.1.29: $4y - 3 = 4y$

2.1.35: $3x - 1 = 2x + 14$

2.1.37: $8(x - 8) = 24$

2.1.45: $7(x + 6) = 3(2x + 14) + x$

2.1.47: $t - \dfrac{2}{5} = \dfrac{3}{2}$

2.1.50: $\dfrac{t}{6} + \dfrac{t}{8} = 1$

2.1.53: $0.3x + 1.5 = 8.4$

Solve the problems:

2.1.59: ***Number Problem*** The sum of two consecutive integer is 251. Find the integers.

2.1.63: ***Work Rate*** Two people can complete a task in t hours, where t must satisfy the equation $\dfrac{t}{10} + \dfrac{t}{15} = 1.$ Find the required time t.

2.1.71: *True or False?* Multiplying each side of an equation by zero yields an equivalent equation. Justify your answer.