

Name: _____

Date: _____

Period: _____

Lesson 1 Topic 1-4 Quiz Review

Topic 1

- 1.) Joseph tweets 13 times a day. Define each variable and write an algebraic expression to describe the number of posts after any given number of days.

Let d = number of days Expression: $13d$

- 2.) Ashley posts 17 status updates on her Facebook wall each day. Roberto posts 21 status updates on his Facebook wall each day.

Part A: Define each variable and write an algebraic expression to describe the combined number of posts for Ashley and Roberto after any given number of days.

Let d = number of days Expression: $38d$

Part B: Write an algebraic expression to describe the difference between number of posts for Ashley and Roberto after any given number of days *$4d$*

- 3.) The local humane society is restocking on cat food to prepare for kitten season. Very young kittens need kitten formula which costs \$3.99 per bottle. Older kittens need wet cat food which costs \$1.50 per can.

Part A: Write an algebraic expression to describe how much the humane society will spend on kitten supplies. Identify the parts of the expression by underlining the coefficient(s), circling the constant(s), and drawing a box around the variable(s).

Let f = number of bottles of kitten formula Let c = number of cans of wet cat food

Expression: $3.99f$ + $1.50c$ (box should be around the “ f ” and “ c ”

Part B: How much money (before tax) will the humane society spend if they buy 30 bottles of kitten formula and 120 cans of wet cat food? *$3.99(30) + 1.50(120) = \$299.70$ spent for kitten supplies*

Part C: If you add a 7% sales tax to the purchase of bottles of kitten formula and cans of wet cat food, how would the algebraic expression used in parts A and B change? *$1.07(3.99f + 1.50c)$ or equivalent expression....multiplying by 1.07 will give the new total cost including 7% tax. The new solution would be \$320.70*

Topic 2

- 4.) Consider the following polynomial expression: $4x^5 - 16x^2 + 13x^8$

Part A: Write the polynomial expression in standard form. *$13x^8 + 4x^5 - 16x^2$*

Part B: What is the degree of the polynomial? 8^{th} degree

Part C: How many terms are in the polynomial? 3 terms (*trinomial*)

Part D: What is the leading term? $13x^8$

Part E: What is the leading coefficient? 13

5.) Match the polynomial in the left column with its descriptive feature in the right column.

A.) $x^3 + 3x^2 - 2x + 7$

B I. 9th degree monomial

B.) $3a^3b^6$

G II. Constant term of -7

C.) $3x^4 - 9x^3 + 5x^8$

E III. 7th degree polynomial

D.) $7a^3b^2 + 18ab^2c - 9a^3$

F IV. Leading coefficient of 4

E.) $2x^5 - 9x^3 + 8x^7$

A V. Four terms

F.) $4x^8 - 7x^2 + 9$

D VI. 5th degree polynomial

G.) $x^2 - 7$

C VII. Equivalent to $5x^8 + 3x^4 - 9x^3$

Topic 3

6.) Write an equivalent expression to $(x + 4)(x - 3)$ by using the distributive property and by modeling.

Distributive Property: $x(x - 3) + 4(x - 3) = x^2 - 3x + 4x - 12 = \underline{x^2 + x - 12}$

Modeling:

	x	-3
x	x^2	$-3x$
4	$4x$	-12

$$= x^2 - 3x + 4x - 12 = \underline{x^2 + x - 12}$$

7.) The Coleman family always tips 20% on the cost of their meal before tax. Their tip amount can be represented using the expression $0.2(x - 2.55)$, where x is the cost of their food and $\$2.55$ is the amount of sales tax added to their bill.

Part A: Use the distributive property to write an equivalent expression. $0.2x - 0.51$

Part B: How much would the Coleman family leave as a tip if the total cost of their bill was \$42.50?

If you assume that \$42.50 is after tax and a 7% tax rate: $0.2 (42.50 - 2.78) = 0.2 (39.72) = \7.94 tip

If you assume that \$42.50 is before tax: $0.2 (42.50) = \$8.50$ tip

8.) Martha takes her niece and nephew to a concert. She buys each of them a t-shirt, 3 posters, and 2 souvenir cups.

Part A: Using the distributive property write an expression she can use to determine how much money she will spend total on her niece and nephew.

$2(x + 3p + 2c)$ where $x = \#$ of t-shirts, $p = \#$ of posters and $c = \#$ of souvenir cups

Part B: If t-shirts cost \$21, poster cost \$3, and souvenir cups cost \$8.50, determine how much, before taxes, Martha will spend on her niece and nephew at the concert.

$2(21 + 3(3) + 2(8.50)) = \94 total spent on niece and nephew at the concert

Topic 4

9.) Identify the property used to find the equivalent expressions.

Part A: $5 \cdot (x \cdot 12) = (5 \cdot x) \cdot 12$ (*Associative property of multiplication*)

Part B: $(3 + 5) + 11 = 11 + (3 + 5)$ (*Commutative property of addition*)

10.) Write a mathematical proof showing the algebraic equivalency of the following equation:

$$(3a)(4b)(5c) = 60abc$$

$(3 \cdot 4)(ab)(5c)$ *Associative prop of mult*

$(3 \cdot 4)(5c)(ab)$ *Commutative prop of mult*

$(3 \cdot 4)(5a)(bc)$ *Associative prop of mult*

$(3 \cdot 4 \cdot 5)(abc)$ *Associative prop of mult*

$60abc$ *Simplify*