Quarter Test Review
Unit 1 – The Real Number System

(1) A method for simplifying $5(x - 2) - 2(x - 5)$ is shown below. Identify the property used to obtain each of the two indicated steps.

$5(x - 2) - 2(x - 5)$

$5x - 10 - 2x + 10$ _____

$5x - 2x - 10 + 10$ _____

$3x$

(2) Given the following set of real numbers, determine if each number is *rational* or *irrational*.

a) 23   b) $\sqrt{3}$ c) 2.35   d) $-6.\overline{5}$

e) $\sqrt[3]{-81}$ f) $\frac{4}{9}$ g) -15   h) π

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(3) The number **0.8** belongs to which of these sets? natural numbers, whole numbers, integers, rational numbers, irrational numbers, real numbers
Name all that apply.

(4) Rewrite the following number in **simplest radical form**.

$$\sqrt{80}$$

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(5) Determine if each statement is *true* or *false*. If *false*, provide an example to prove that the statement is false.

a) The sum of two rational numbers is always rational.

b) The sum of two irrational numbers is always irrational.

c) The product of two rational numbers is always rational.

d) The product of two irrational numbers is always irrational.

e) The sum of a rational and irrational number is always irrational.

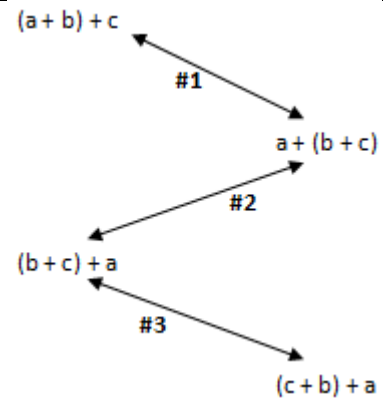f) The product of a rational and irrational number is always irrational.

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(6) The flow diagram shows that $(a + b) + c = (c + b) + a$

State the property that was used to create an equivalent expression.

#1) _____

#2) _____

#3) _____

$(a + b) + c$

#1

$a + (b + c)$

#2

$(b + c) + a$

#3

$(c + b) + a$

Quarter Test Review
Unit 2 – Polynomial Expressions

(1) Colin has 3 more CDs than Angela. Harley has twice as many CDs as Colin. If **n** represents the number of CDs owned by Angela, express the number of CDs owned by Harley in terms of **n**.

(2) Your bill at a grocery store can be expressed as

$$C = T + .08T$$

a) What could the **T** represent?

b) What could the **0.08T** represent?

(3) For a picnic, you buy **h** packages of hot dogs for $3.99 per package and **b** packages of hot dog buns for $2.19 per package. The expression **3.99h + 2.19b** can be used to represent the total cost.

   A. What does the variable **h** represent in the expression?

   B. What does the term **2.19b** represent in the expression?

   C. Determine the units associated with the expression.

   D. How much does it cost to purchase 7 packages of hot dogs and 10 packages of hot dog buns?

(4) If **A** = $5x^2 + 7x - 5$ and **B** = $-4x^2 - 8x + 5$, then find the value of each of the following:

   a) **A + B**   b) **A – B**

(5) Simplify the polynomial expression. Represent your final answer in standard form.

   (x – 2)² – 4(x + 5)

(6) Represent the product of **2x + 7** and **–x² – x + 3** as a simplified polynomial expression written in standard form.

(7) The measure of the base of a triangle is represented by **4x + 10** and its height is represented by **6x**. Represent the area of the triangle as a polynomial expression in simplest standard form.

   A = ½ bh

Quarter Test Review

Unit 3 – Equations

For #'s 1 – 4, solve each equation to find the value of x.

(1) $x - (3x + 2) = 7 - 2x$	(2) $\frac{1}{2}(4x - 2) = 15$
(3) $\frac{2x - 4}{8} = \frac{x - 5}{5}$	(4) $\frac{2x}{3} - \frac{2}{5} = 14$

(5) Solve for **h** in terms of **A** and **b**. $$A = \frac{1}{2}bh$$	(6) Solve for **v** in terms of **P** and **r**. $$P = \frac{rv^2}{3}$$

(7) The following literal equation was solved for **a**. Name the property of equality used in each step.

$aq - t = s$

$aq = s + t$ _____

$a = \dfrac{s + t}{q}$ _____

(8) Are the following equations equivalent? Justify your response.

a) $-\dfrac{3}{4}(x - 8) = -\dfrac{1}{2}x$ 　　　　　 b) $-3(x - 8) = -2x$

Quarter Test Review
Unit 4 – Applications with Equations

(1) Twice the smaller of two *consecutive odd* integers is seven more than the larger. Find the integers.

(2) When Ruth emptied her piggy-bank, of nickels and dimes, she counted 84 coins in total. The value of the coins was $7.15. How many dimes did she have?

(3) Carl is 7 years older than Anne. Fifteen years from now, Carl will be 33 years less than twice Anne's age at that time. How old is Carl now?

(4) A screening of a documentary was held at a university. Student admission was $2 while non-student admission was $5. The amount received at the box office from admission sales was $1022. The number of students attending the screening was four more than four times the number of non-students who attended. Determine the number of students who attended the screening.

(5) Which equation below represents the situation described?

In 2013, the United States Postal Service charged $0.46 to mail a letter weighing up to 1 oz. and $0.20 per ounce for each additional ounce. Determine the number of ounces (z) a letter weighs if the cost to mail it is $1.26 assuming $z \geq 1$.

A. $0.46z + 0.20 = 1.26$

B. $0.46(z - 1) + 0.20 = 1.26$

C. $0.20z + 0.46 = 1.26$

D. $0.20(z - 1) + 0.46 = 1.26$

Quarter Test Review
Station 5 - Mixed Review

(1) Which of the following result in a rational number? Justify your response.

I. $\frac{-1}{8} \cdot \frac{2}{5}$ II. $\sqrt{5} \cdot \sqrt{5}$

III. $\frac{1}{3} \cdot \sqrt{8}$ IV. $-2 \cdot \sqrt{81}$

A. II only
B. III only
C. I, II, and IV
D. II, III and IV

2. Betty says that it's possible for the product of two irrational numbers to be rational. State whether or not you agree with Betty. **Explain** your reasoning and **provide at least one example** to support your explanation.

3. Express $(3x - 4)(2 + x) - x^2 - 5$ as a trinomial.

4. Find the product of $(w - 6)(-w^2 + 4w + 6)$.

5. The perimeter of an isosceles triangle can be expressed as P = 2y + x.

y /\ y

x
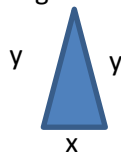
a. Solve the equation for y.

b. If the perimeter of the triangle is 16 inches and the base x, is 6 inches, find the length of each side, y.

6. $x = \frac{1}{7} pm^2$

a. Solve for m:

b. Solve the same equation for p.