

Coordinate Algebra  
Review Worksheet for Unit 2 Quiz #1

Name Key Class Period 9/14

You must know the following Properties of Equality and Properties of Operations and write an example of each according to the note handout:

Addition Property of Equality  $\rightarrow x = y, x + z = y + z$

Subtraction Property of Equality  $\rightarrow x = y, x - z = y - z$

Multiplication Property of Equality  $\rightarrow x = y, x(z) = y(z)$

Division Property of Equality  $x = y, \frac{x}{z} = \frac{y}{z}$

Substitution Property of Equality  $x = 3, x + 7 = 10$

Reflexive Property of Equality  $\rightarrow 5y = 5y$

Symmetric Property of Equality  $\rightarrow 8 = x, x = 8$

Transitive Property of Equality  $x = y, y = z, x = z$

Commutative Property of Addition  $\rightarrow 8 + 2 = 2 + 8$

Commutative Property of Multiplication  $\rightarrow 6(3) = 3(6)$

Associative Property of Addition  $6 + (5 + 2) = 5 + (6 + 2)$

Associative Property of Multiplication  $\rightarrow 3(3x) = x(3x)$

Distributive Property  $5(x + 2) = 5x + 10$

Identity Property of Addition  $\rightarrow 9 + 0 = 9$

Identity Property of Multiplication  $\rightarrow 27 \cdot (1) = 27$

Property of Zero  $7(0) = 0$

Additive and Multiplicative Inverses

$$5 + (-5) = 0 \quad (\text{addition})$$

$$\frac{5}{3} \cdot \frac{3}{5} = 1 \quad (\text{multiplicative})$$

1. Solve and state the reasons for the steps

$$2(x + 4) - 5 = 5$$

Given

$$\underline{2x + 8 - 5 = 5}$$

Distributive property

$$\underline{2x + 3 = 5}$$

Combine like terms

$$\underline{2x = 2}$$

Subtraction property

$$\underline{x = 1}$$

Division property

2. Solve for x:

a)  $\frac{2}{3}x - 7 = -1$

$\frac{3}{2} \cdot \frac{2}{3}x = 6 \cdot \frac{3}{2}$

$x = 9$

b)  $-3x + 2 > 8$

$-3x > 6$

$x < -2$

3. Claire needs \$3.35 to buy a Frappuccino. The only money she has is nickels and quarters. Write an equation for the different amounts of nickels,  $n$ , and quarters,  $q$ , she could use to buy the drink.

$3.35 = .05n + .25q$

4. If she has 12 quarters, how many nickels does she need to buy the drink?

$3.35 = .05 + .25(12)$

$3.35 = .05n + 3$

$.35 = .05n$

$n = 7$

5. Coach Barton holds hitting lessons for \$40 ~~each~~ for a 30 minute session. Write an equation for the amount of money he makes,  $C$ , for  $s$  sessions.

$C = 40(s)$

A. How much money will he make in 5 hours? (10 sessions)

$C = 40(10)$

$\$400$

B. How many hours will he have to coach to make \$400?

$C = 40\left(\frac{400}{40}\right)$

$\frac{400}{40} = \frac{40s}{40}$

$s = 10$

$5 \text{ hrs}$

6. Solve for x.

a)  $3^x + 1 = 28$

$3^x = 27$

$3^x = 3^3$

$x = 3$

b)  $5^{2x} = 25^{2x+2}$

$5^{2x} = (5^2)^{2x+2}$

$2x = 4x + 4$

$-2x = 4$

$x = -2$

c)  $2(4^x) - 3 = 29$

$2(4^x) = 32$

$4^x = 16$

$4^x = 4^2$

$x = 2$

d)  $5(10^{3x-1}) = 500000$

$10^{3x-1} = 100,000$

$10^{3x-1} = 10^5$

$3x - 1 = 5$

$3x = 6$

$x = 2$