

Review Worksheet for the Unit 2 Test

Name _____ Class Period _____

Be sure to study the Unit 2 Quiz to help you prepare for the Unit 2 Test!

You must know the following Properties of Equality and Properties of Operations as well as an example of each.

Addition Property of Equality

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

Substitution Property of Equality

Reflexive Property of Equality

Symmetric Property of Equality

Transitive Property of Equality

Commutative Property of Addition

Commutative Property of Multiplication

Associative Property of Addition

Associative Property of Multiplication

Distributive Property

Identity Property of Addition

Identity Property of Multiplication

Property of Zero

Additive and Multiplicative Inverses

I. Solve for x.

1. $3^x = 81$

$3^x = 3^4$

$x = 4$

3. $6^x + 4 = 32$

$6^x = 36$

$6^x = 6^2$

$x = 2$

2. $4^x = \frac{1}{16}$

$4^x = 4^{-2}$

$x = -2$

4. $\left(\frac{1}{25}\right)^{3x-9} = 5^{3x}$

$(5^{-2})^{3x-9} = 5^{3x}$

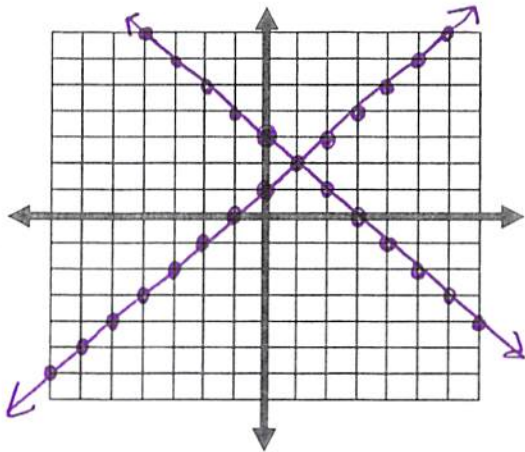
$5^{-6x+18} = 5^{3x}$

$-6x + 18 = 3x$
 $+18 = 9x$
 $\frac{18}{9} = \frac{9x}{9}$

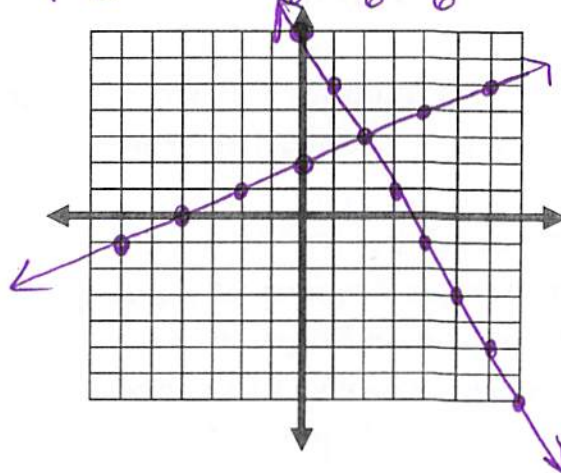
$x = 2$

II. Solve the linear system of equations by using the graphing method.

(1, 2) 5. $y = -x + 3$
 $y = x + 1$



(2, 3) 6. $y = -2x + 7$
 $-3x + 6y = 12$
 $+3x \quad +3x$
 $\frac{6y}{6} = \frac{3x+12}{6}$
 $y = \frac{1}{2}x + 2$



III. Solve the linear system of equations by using the substitution method.

(2, 2) 7. $y = 2x - 2$
 $6x + 2y = 16$
 $6x + 2(2x - 2) = 16$
 $6x + 4x - 4 = 16$
 $10x + 4 = 16$
 $\frac{10x}{10} = \frac{12}{10}$
 $x = 2$
 $y = 2(2) - 2 = 4 - 2 = 2$
 $y = 2$

(-2, -2) 8. $4x - y = -6$
 $y = 2x + 2$
 $4x - (2x + 2) = -6$
 $4x - 2x - 2 = -6$
 $2x + 2 = -6$
 $\frac{2x}{2} = \frac{-8}{2}$
 $x = -2$
 $y = 2(-2) + 2 = -4 + 2 = -2$
 $y = -2$

IV. Solve the linear system of equations by using the elimination method.

(2, 1) 9. $5x - 3y = 7$
 $x + 3y = 5$
 $\frac{6x}{6} = \frac{12}{6}$
 $x = 2$
 $2 + 3y = 5$
 $\frac{3y}{3} = \frac{3}{3}$
 $y = 1$

(1, -2) 10. $(-3x + 3y = -9) \cdot 2$
 $6x + 2y = 2$
 $-6x + 6y = -18$
 $\frac{8y}{8} = \frac{-16}{8}$
 $y = -2$
 $6x + 2(-2) = 2$
 $6x + 4 = 2$
 $\frac{6x}{6} = \frac{-2}{6}$
 $x = 1$

V. Use the method of your choice to solve the linear system.

11. $6x - 9y = 18$
 $(2x - 3y = 10) \cdot 3 \quad -6x + 9y = -30$

$$\begin{array}{r} 6x - 9y = 18 \\ -6x + 9y = -30 \\ \hline 0 = -12 \end{array}$$

NO SOLUTION

VI. Systems of Linear Equations Word Problems:

12. A store sold 32 pairs of jeans for a total of \$1050. Brand A sold for \$30 per pair and Brand B sold for \$35 per pair. Use a system of linear equations to determine how many of Brand A were sold?

X = Brand A
 Y = Brand B

$$30X + 35Y = 1050$$

$$(X + Y = 32) \cdot 30$$

$$30X + 35Y = 1050$$

$$-30X - 30Y = -960$$

$$\frac{5Y}{5} = \frac{90}{5}$$

$$Y = 18$$

$$\begin{array}{r} X + 18 = 32 \\ -18 \quad -18 \\ \hline X = 14 \end{array}$$

14 pairs of Brand A were sold.

13. You are selling tickets for a basketball game. Student tickets cost \$3 and general admission tickets cost \$5. You sell 350 tickets and collect \$1450. Use a system of linear equations to determine how many of each type of ticket did you sell?

X = Students
 Y = general admission

$$3X + 5Y = 1450$$

$$(X + Y = 350) \cdot 3$$

$$3X + 5Y = 1450$$

$$-3X - 3Y = -1050$$

$$\frac{2Y}{2} = \frac{400}{2}$$

$$Y = 200$$

150 student tickets sold

&
 200 student tickets sold

$$\begin{array}{r} X + 200 = 350 \\ -200 \quad -200 \\ \hline X = 150 \end{array}$$

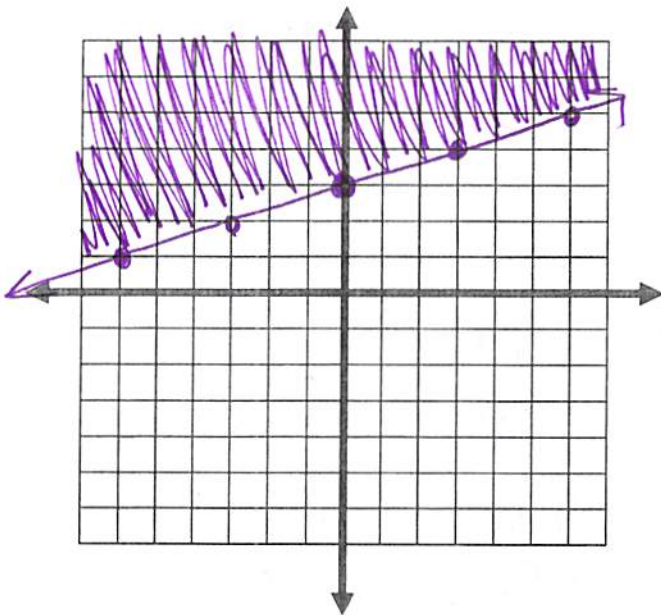
VII. Write the reason for each step in solving the equation.

14.

Equation	Steps
$4(x - 3) + 14 = 42$	Given
$4x - 12 + 14 = 42$	Distributive Property
$4x + 2 = 42$	Combine like terms / Simplify
$4x = 40$	Subtraction property of Equality
$x = 10$	Division property of Equality

VIII. Graph the following, showing the solutions.

15. $x - 3y \leq -9$
 $\begin{array}{r} x - 3y \leq -9 \\ -x \quad -x \\ \hline -3y \leq -x - 9 \\ \frac{-3y}{-3} \leq \frac{-x - 9}{-3} \\ y \geq \frac{1}{3}x + 3 \end{array}$



16. $y > -x + 2$
 $\begin{array}{r} 4x + y < -1 \\ -4x \quad -4x \\ \hline y < -4x - 1 \end{array}$

