Lesson 3.2 Worksheet

Name: Key

Solve the system using the substitution method.

1.) $2x + 5y = 7$
$x = -4y - 2$

$2(-4y - 2) + 5y = 7$
$-8y - 4 + 5y = 7$
$-3y = 11$
$y = -11/3$

$x = -4(-11/3) - 2$
$x = 12\ 2/3$

solution: $(12\ 2/3, -3\ 2/3)$

2.) $3x + 2y = 6$
$-4y = -x - 12$ $x = 4y - 12$

$3(4y - 12) + 2y = 6$
$12y - 36 + 2y = 6$
$14y = 42$
$y = 3$

$x = 4(3) - 12$
$x = 12 - 12$
$x = 0$

solution: $(0, 3)$

3.) $6x - 3y = 15$
$-2x = -y - 5$ $y = 2x - 5$

$6x - 3(2x - 5) = 15$
$6x - 6x + 15 = 15$
$15 = 15$

solution: Infinitely many Solutions

Solve the system using the elimination method.

4.) $(3x - 4y = -10)^{x-2}$
$6x + 3y = -42$

$-6x + 8y = 20$
$11y = -22$
$y = -2$

$3x - 4(-2) = -10$
$3x + 8 = -10$
$3x = -18$
$x = -6$

solution: $(-6, -2)$

5.) $-4y = 3x - 18$ $(-3x - 4y = -18)^{x2}$
$6x + 8y = 18$ $6x + 8y = 18$
$-6x - 8y = -36$
$0 \neq -18$

solution: NO solution

6.) $7x + 2y = 11$ $(7x + 2y = 11)^{x-3}$
$-2x = -3y + 29$ $(-2x + 3y = 29)^{x2}$

$-21x - 6y = -33$
$-4x + 6y = 58$
$-25x = 25$
$x = -1$

$7(-1) + 2y = 11$
$-7 + 2y = 11$
$2y = 18$
$y = 9$

solution: $(-1, 9)$

Solve the system using any algebraic method.

7.) $(2x - 3y = 8)^{x2}$
$-4x + 5y = -10$

$4x - 6y = 16$
$-y = 6$
$y = -6$

$2x - 3(-6) = 8$
$2x + 18 = 8$
$2x = -10$
$x = -5$

solution: $(-5, -6)$

8.) $3x + 2 = y$
$5x + 2y = 15$

$5x + 2(3x + 2) = 15$
$5x + 6x + 4 = 15$
$11x = 11$
$x = 1$

$3(1) + 2 = y$
$3 + 2 = 5$
$5 = y$

solution: $(1, 5)$

9.) $4x - 3y = 8$ $(4x - 3y = 8)^{x2}$
$6y = 8x + 16$ $-8x + 6y = 16$
$8x - 6y = 16$
$0 \neq 32$

solution: No Solution

10.) In one week, a music store sold 9 guitars for a total of \$3611. Electric guitars sold for \$479 each and acoustic guitars sold for \$339 each.

a. Write a system of linear equations that relates the unknowns. Be sure to define your variables. Solve the system using the method of your choice.

x = # of electric guitars sold

y = # of acoustic guitars sold

$$x + y = 9$$
$$479x + 339y = 3611$$

$x(-339)$

$-339x - 339y = -3051$

$479x + 339y = 3611$

$140x = 560$

$x = 4$

$y = 5$

b. How many of each type of guitar were sold?

4 electric guitars and 5 acoustic guitars sold

11.) An adult pass for a county fair costs \$2 more than a children's pass. When 378 adult and 214 children's passes were sold, the total revenue was \$2384.

a. Write a system of linear equations that relates the unknowns. Be sure to define your variables. Solve the system using the method of your choice.

x = cost of an adult ticket

y = cost of children ticket

$$x = y + 2$$
$$378x + 214y = 2384$$

$378(y+2) + 214y = 2384$

$378y + 756 + 214y = 2384$

$592y = 1628$

$y = 2.75$

$x = 4.75$

b. How much does an adult ticket cost?

\$4.75 for an adult ticket

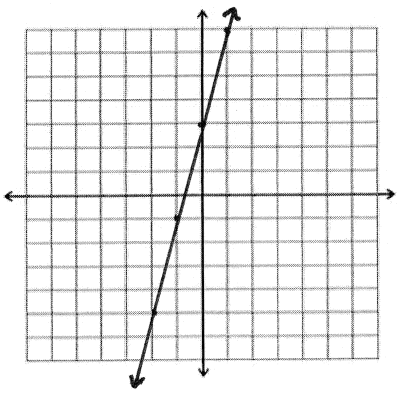
Solve the linear system by graphing (be sure that it is clear to me how you graphed your lines). You must check your solution algebraically. Then classify the system as *consistent and independent, consistent and dependent,* or *inconsistent*.

12.) $y = 4x + 3$ → $m = 4$, y-int: $(0, 3)$

$20x - 5y = -15$ → $-5y = -20x - 15$

$y = 4x + 3$

$m = 4$, y-int: $(0, 3)$



solution: Infinitely many solutions

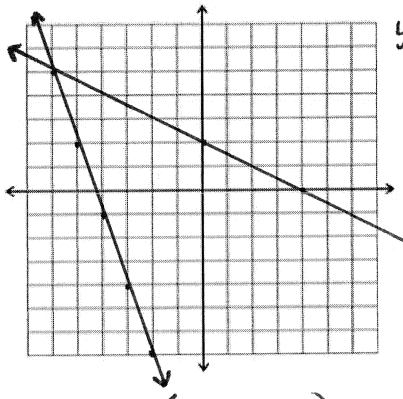
classify: consistent, dependent

13.) $y = -3x - 13$

x	-2	-3	-4	-5
y	-7	-4	-1	2

$-x - 2y = -4$ → x-int: $(4, 0)$

y-int: $(0, 2)$



Check $(-6, 5)$

$5 = -3(-6) - 13$

$5 = 18 - 13$

$5 = 5$ ✓

$6 - 2(5) = -4$

$6 - 10 = -4$

$-4 = -4$ ✓

solution: $(-6, 5)$

classify: consistent independent