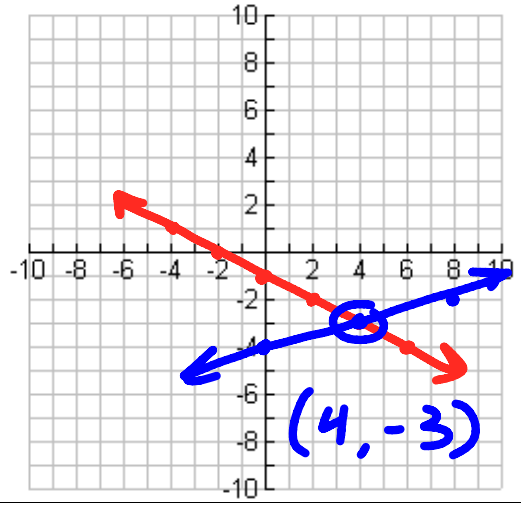
Name: Key

Unit Review: Solving Systems of Equations

Part 1: Graphing

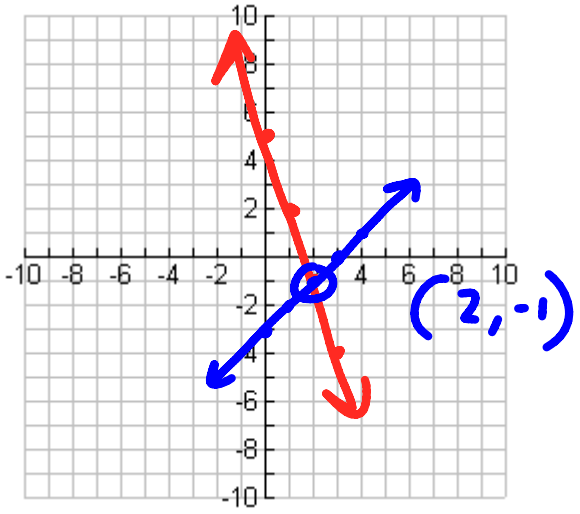
1) $y = \frac{-1}{2}x - 1$

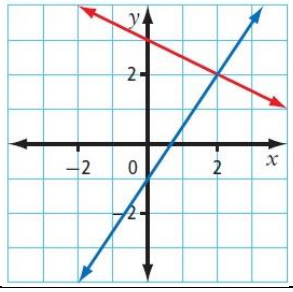
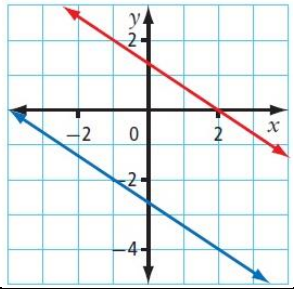
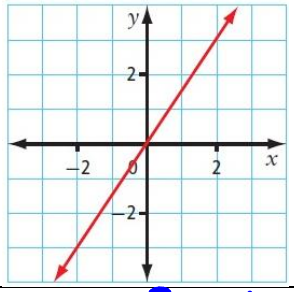
$y = \frac{1}{4}x - 4$



2) y = -3x + 5

y = x – 3



Part 2:	Intersecting Lines	Parallel Lines	Coincident (Same) Lines
			
Number of Solutions	1	None	Infinite
Slopes	different	same	same
Y-Intercepts	different	different	same

Part 3: Substitution

3)

$\begin{cases} y = 2x - 4 \\ y = -3x + 1 \end{cases}$

$2x - 4 = -3x + 1$

$+3x \quad +3x$

$5x - 4 = 1$

$+4 \quad +4$

$\frac{5x}{5} = \frac{5}{5}$

$x = 1$

$y = 2(1) - 4$

$y = 2 - 4$

$y = -2$

$(1, -2)$

4)

$\begin{cases} y = 6x + 4 \\ y = 4x - 2 \end{cases}$

$6x + 4 = 4x - 2$

$-4x \quad -4x$

$2x + 4 = -2$

$-4 \quad -4$

$\frac{2x}{2} = \frac{-6}{2}$

$x = -3$

$y = 6(-3) + 4$

$y = -18 + 4$

$y = -14$

$(-3, -14)$

5)

$x = -y + 5$

$x = 2y - 4$

$-y + 5 = 2y - 4$

$+y \quad +y$

$5 = 3y - 4$

$+4 \quad +4$

$\frac{9}{3} = \frac{3y}{3}$

$3 = y$

$x = -3 + 5$

$x = 2$

$(2, 3)$

6)

$y = 2x$

$7x - y = 15$

$7x - 2x = 15$

$\frac{5x}{5} = \frac{15}{5}$

$x = 3$

$y = 2(3)$

$y = 6$

$(3, 6)$

Part 4: Elimination

7)

$-4x + y = 6$

$+ \; -5x - y = 21$

$\frac{-9x}{-9} = \frac{27}{-9}$

$x = -3$

$-4(-3) + y = 6$

$12 + y = 6$

$-12 \quad -12$

$y = -6$

$(-3, -6)$

8)

$-4x - 2y = -12$

$+ \; 4x + 8y = -24$

$\frac{6y}{6} = \frac{-36}{6}$

$y = -6$

$-4x - 2(-6) = -12$

$-4x + 12 = -12$

$-12 \quad -12$

$\frac{-4x}{-4} = \frac{-24}{-4}$

$x = 6$

$(6, -6)$

9)

$8(-5x + y = -3)$

$3x - 8y = 24$

$-40x + 8y = -24$

$3x - 8y = 24$

$\frac{-37x}{-37} = \frac{0}{-37}$

$x = 0$

$-5(0) + y = -3$

$0 + y = -3$

$y = -3$

$(0, -3)$

10)

$2(5x + y = 9)$

$10x - 7y = -18$

$-10x + 2y = 18$

$\frac{-9y}{-9} = \frac{-36}{-9}$

$y = 4$

$5x + y = 9$

$5x + 4 = 9$

$-4 \quad -4$

$\frac{5x}{5} = \frac{5}{5}$

$x = 1$

$(1, 4)$

Part 5: Applications

11) The sum of two numbers is 82. Their difference is 24. Write and solve a system of equations that describes this situation and find the two numbers.

x = 1st number

y = 2nd number

$$x + y = 82$$
$$+\ x - y = 24$$
$$\frac{2x}{2} = \frac{106}{2}$$
$$x = 53$$

$$53 + y = 82$$
$$-53 \quad -53$$
$$y = 29$$

Answer: The two numbers are 29 and 53.

12) Two groups of students order burritos and tacos at a local restaurant. One order of 3 burritos and 4 tacos cost \$11.33. The other order of 9 burritos and 5 tacos cost \$23.56. Write and solve a system of equations to find the cost of one burrito and the cost of one taco.

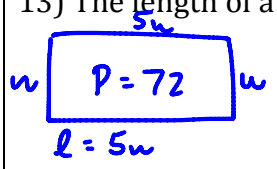
$$3(3b + 4t = 11.33)$$
$$9b + 5t = 23.56$$
$$9b + 12t = 33.99$$
$$9b + 5t = 23.56$$

$$9b + 12t = 33.99$$
$$-9b + 5t = 23.56$$
$$\frac{7t}{7} = \frac{10.43}{7}$$
$$t = 1.49$$

$$3b + 4(1.49) = 11.33$$
$$3b + 5.96 = 11.33$$
$$-5.96 \quad -5.96$$
$$\frac{3b}{3} = \frac{5.37}{3}$$
$$b = 1.79$$

Answer: A burrito costs \$1.79 and a taco costs \$1.49.

13) The length of a garden is 5 times its width. Find the length and width if the perimeter is 72 feet.



$$5w + 5w + w + w = 72$$
$$\frac{12w}{12} = \frac{72}{12}$$
$$w = 6$$

$$l = 5w$$
$$l = 5(6)$$
$$l = 30$$

Answer: The length of the garden is 30 ft. and the width is 6 ft.