Warm-Up:

1) Simplify $3x^2 + 4y - z$ if $x = 2$, $y = -3$, and $z = 4$

$3(2)^2+4(-3)-4 = -4$

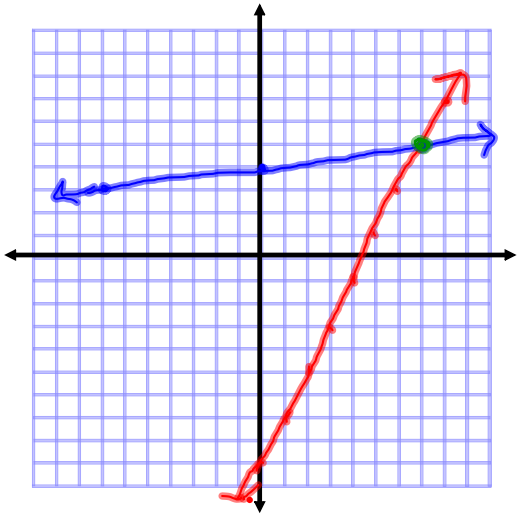
$12+-12-4$

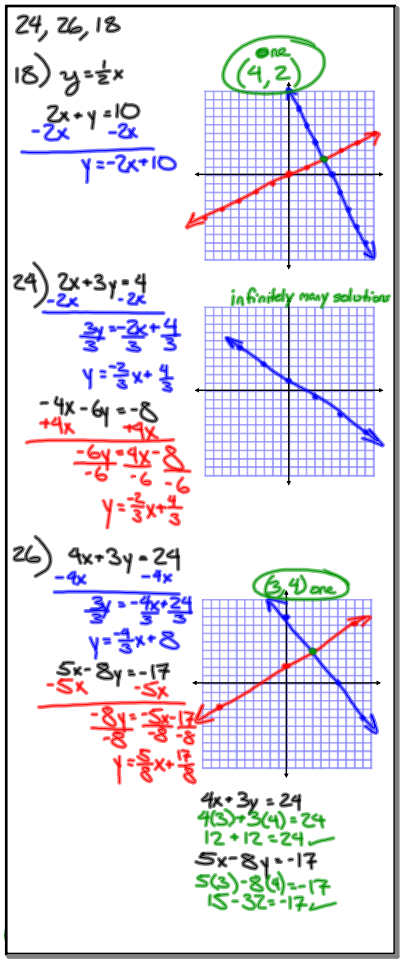
Solve by graphing.

2) $y = 2x - 9$

$y = \frac{1}{7}x + 4$

(7, 5)





Examples:
Solve.

1) $y = x + 3$
$x = 0$

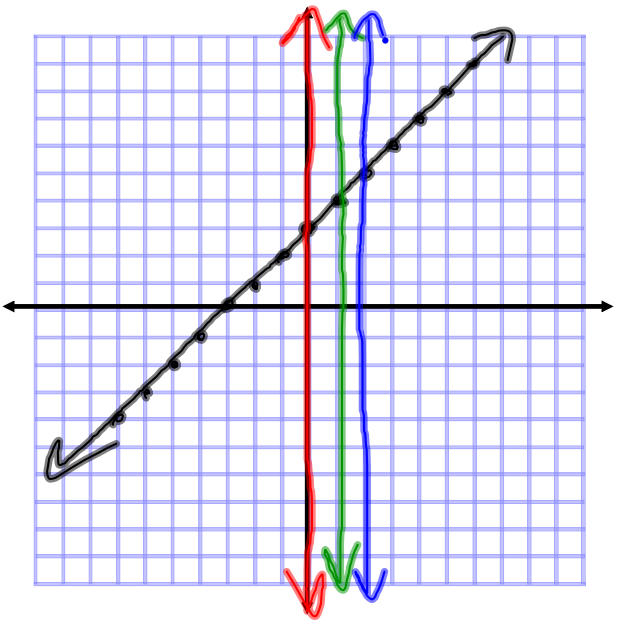
$y = 0 + 3$
$y = 3$
$(0, 3)$

2) $y = x + 3$
$x = 1$

$y = 1 + 3$
$y = 4$
$(1, 4)$

3) $y = x + 3$
$x = 2$

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



Section 5-2: Substitution

Recall: Replacing a variable with an equal expression is substitution.

Examples:

4) $y = 3x$
$y = x + 2$

$3x = x + 2$
$-x \quad -x$
$2x = 2$
$\frac{2x}{2} = \frac{2}{2}$
$x = 1$

$y = 3(1) \qquad y = 1 + 2$
$y = 3$

$(1, 3)$

5) $y = 3x$
$x = y + 2$

$x = 3x + 2$
$-3x \quad -3x$
$-2x = 2$
$\frac{-2x}{-2} = \frac{2}{-2}$
$x = -1$

$y = 3(-1)$
$y = -3$

$(-1, -3)$

Examples:

6) $x = 4y$
$4x - y = 75$

$4(4y) - y = 75$
$16y - y = 75$
$\frac{15y}{15} = \frac{75}{15}$
$y = 5$

$x = 4(5)$
$x = 20$

$(20, 5)$

7) $4x + y = 12$
$-2x - 3y = 14$

$4x + y = 12$
$-4x \quad -4x$
$y = -4x + 12$

$-2x - 3(-4x + 12) = 14$
$-2x + 12x - 36 = 14$
$10x - 36 = 14$
$+36 \quad +36$
$\frac{10x}{10} = \frac{50}{10}$
$x = 5$

$x = 5$
$y = -4(5) + 12$
$y = -20 + 12$
$y = -8$

$(5, -8)$

Examples:

8) $2x + 2y = 8$

$x + y = -2$

$-x \quad -x$

$y = -x - 2$

$2x + 2(-x - 2) = 8$

$2x - 2x - 4 = 8$

$-4 \neq 8$

No Solution

Examples:

9) Gold is alloyed with different metals to make it hard enough to be used in jewelry. The amount of gold present in a gold alloy is measured in 24ths called *karats*. 24-karat gold is 24/24 or 100% gold. Similarly, 18-karat gold is 18/24 or 75% of gold. How many ounces of 18-karat gold should be added to an amount of 12-karat gold to make 4 ounces of 14-karat gold?

Homework: pg. 263 #8-18 even, 24, 26-28 all, 35-37 all

Section 5-2 Vocab