Remember

System Of Equations

2 Variables are missing and you need to use one of the following to find the point of intersection:

1) Graphing

- Must get each equation into y=mx+b form (Plot the y intercept, b, then use slope of rise/run to get the rest of the line)

2) Substitution

- isolate one of the variable in either equation 1 or equation 2, call this equation 3

x = or y =

- Then sub that equation into the unused equation and solve for the numerical value of the variable

- then sub that value into equation 3 to get the numerical value of the last variable

3) Elimination

- Either add or Subtract multiples of the equations to eliminate one variable first and solve for the numerical value of the remaining variable.

What Method do you want to use?

$y = -\frac{5}{3}x + 12$ x3

$y = \frac{3}{2}x - 7$ x2

$3y = -5x + 36$ x3 $\rightarrow 9y = -15x + 105$

$2y = 3x - 14$ x5 $\rightarrow 10y = 15x - 70$

$19y = 38$

$\frac{19y}{19} = \frac{38}{19}$

$y = 2$

sub into

$y = \frac{3}{2}x - 7$

$2 = \frac{3}{2}x - 7$ +7 +7

$9 = \frac{3}{2}x$ x2 x2

$18 = 3x$

$\frac{18}{3} = \frac{3x}{3}$

$6 = x$

What Method do you want to use?

① $y - 4x = -10$ $+4x$ $+4x$ → ① $y = -10 + 4x$

② $3y - x = 3$

↓ sub into ②

$3y - x = 3$

↓

$3(-10+4x) - x = 3$

$-30 + 12x - x = 3$

$-30 + 11x = 3$

$+30 \quad +30$

$11x = 33$

$\frac{11x}{11} = \frac{33}{11}$

$x = 3$

↓ sub into

$y = -10 + 4x$

$y = -10 + 4(3)$

$y = -10 + 12$

$y = 2$

$(3, 2)$

What Method do you want to use?

① $4x + 9y = -19$

$+$ ② $(-4x - 7y = 13)$

① + ② $\quad 2y = -6$

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

$y = -3$

sub into ①

$4x + 9y = -19$

$4x + 9(-3) = -19$

$4x - 27 = -19$

$4x - 27 + 27 = -19 + 27$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

(x, y)

$(2, -3)$

What Method do you want to use?

① $5x - 4y = -23$

+ ② $-5x + 9y = 8$

①+② $5y = -15$

$\frac{5y}{5} = \frac{-15}{5}$

$y = -3$ → sub ①

$5x - 4(y) = -23$

$5x - 4(-3) = -23$

$5x + 12 = -23$

$5x + 12 - 12 = -23 - 12$

$\frac{5x}{5} = \frac{-35}{5}$

$x = -7$

$(-7, -3)$

What Method do you want to use?

$-x + 5y = -16$

② $-3x + 7y = -8$

isolate x → $\frac{-x}{-1} = \frac{-5y}{-1} - \frac{16}{-1}$

① $\boxed{x = 5y + 16}$

↓ sub into ②

$-3x + 7y = -8$

$-3(5y+16) + 7y = -8$

$-15y - 48 + 7y = -8$

$-8y - 48 + 48 = -8 + 48$

$\frac{-8y}{-8} = \frac{40}{-8}$

$\boxed{y = -5}$

$x = 5y + 16$

$x = 5(-5) + 16$

$x = -25 + 16$

$\boxed{x = -9}$

$\boxed{(-9, -5)}$

What Method do you want to use?

① $-x + 5y = -16$

② $-3x + 7y = -8$

$\xrightarrow{\times 3}$ ① $-3x + 15y = -48$

② $-(-3x + 7y = -8) \rightarrow 3x - 7y = 8$

$-3x + 15y = -48$

$3x - 7y = 8$

$\frac{8y}{8} = \frac{-40}{8}$

$y = -5$

sub into eq 10

$-x + 5y = -16$

$-x + 5(-5) = -16$

$-x - 25 = -16$ $+25$ $+25$

$\frac{-x}{-1} = \frac{9}{-1}$

$x = -9$

$6x + 9y = 15 \xrightarrow{\div 3} 2x + 3y = 5$

$x + 7y = 11$

$x + 7y = 11$

1) (3,2)
2) (-7,5)
4) (-5,3)
6) (-4,-1)
7) (3,7)

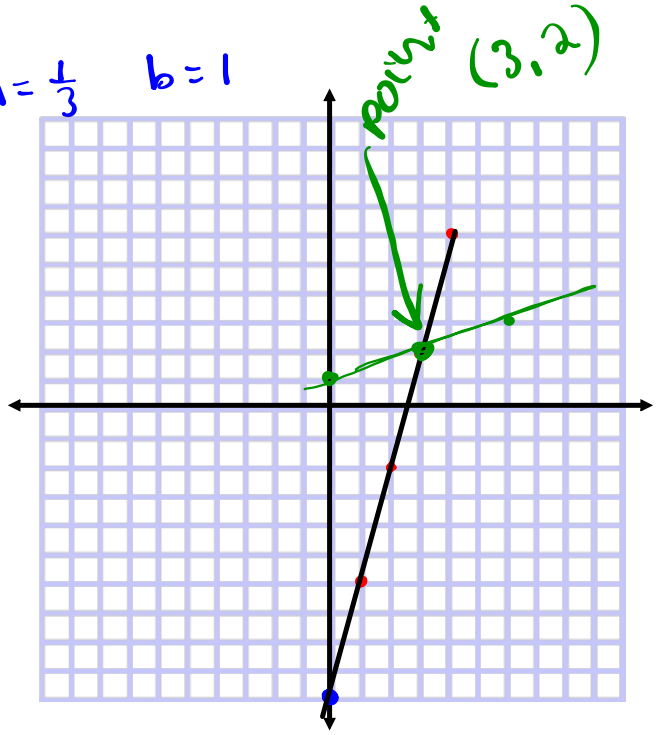
Worksheet - Review System Of Equations

#1, 2, 4, 6, 7

1) $y = mx + b$

$y = 4x - 10$ $m = \frac{4}{1}$ $b = -10$

$y = \frac{1}{3}x + 1$ $m = \frac{1}{3}$ $b = 1$



Attachments

pre-algebra_sys_solve Sys of Eq any method.pdf