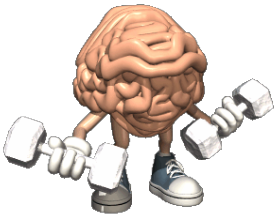


Solve the follwoing systems of equations using Graphing

$3x + 4y = -4$

$4y = -3x - 4$

$\frac{4y}{4} = \frac{-3x}{4} - \frac{4}{4}$

$y = -\frac{3}{4}x - 1$

$m = -\frac{3}{4}$ $b = -1$

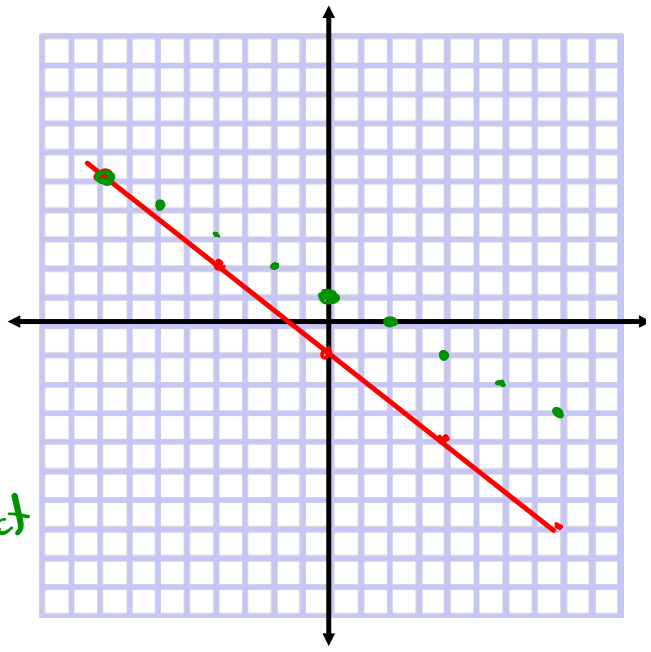
$x + 2y = 2$

$2y = -1x + 2$

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

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

$m = -\frac{1}{2}$ $b = 1$

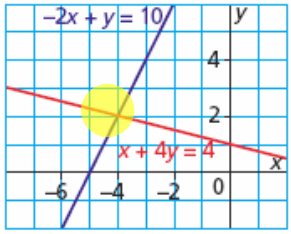


(-8,5)

Intersect

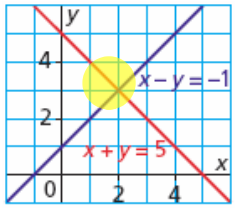
3. Determine the solution of each linear system.

a)



x= -4 , y= 2

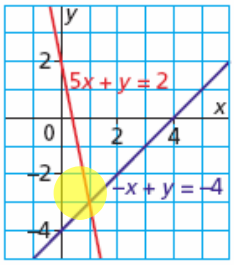
b)



x= 2 , y= 3

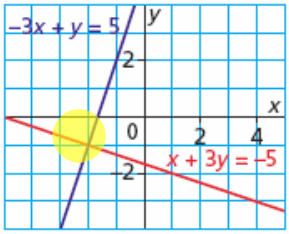
3. a) $x = -4, y = 2$
b) $x = 2, y = 3$
c) $x = 1, y = -3$
d) $x = -2, y = -1$

c)



x= 1 , y= -3

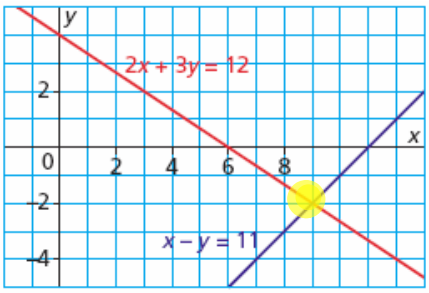
d)



x= -2 , y= -1

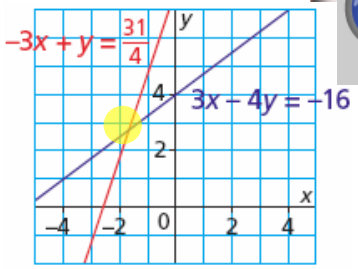
4. For each linear system, use the graphs to determine the solution. Explain how you know whether the solution is exact or approximate.

a)



x=9 , y= -2
This is exact

b)



x= -1 $\frac{3}{4}$, y= 2 $\frac{3}{4}$

This is approximate

5. a) Solve each linear system.

i) $x + y = 7$ ①

$3x + 4y = 24$ ②

(1) x + y =7

y = -x + 7

m= -1

y intercept = (0,7)

x intercept = (7,0)

(2) 3x + 4y = 24

4y = -3x + 24

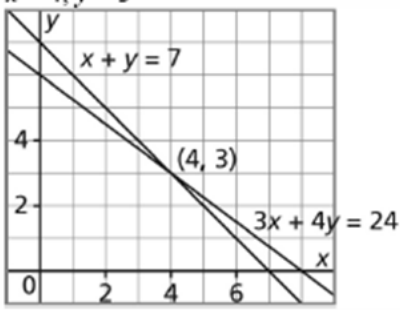
$y = \frac{-3x}{4} + 6$

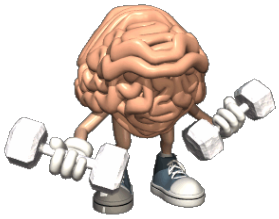
m= -3/4

y intercept = (0,6)

x intercept = (8,0)

a) i) $x = 4, y = 3$





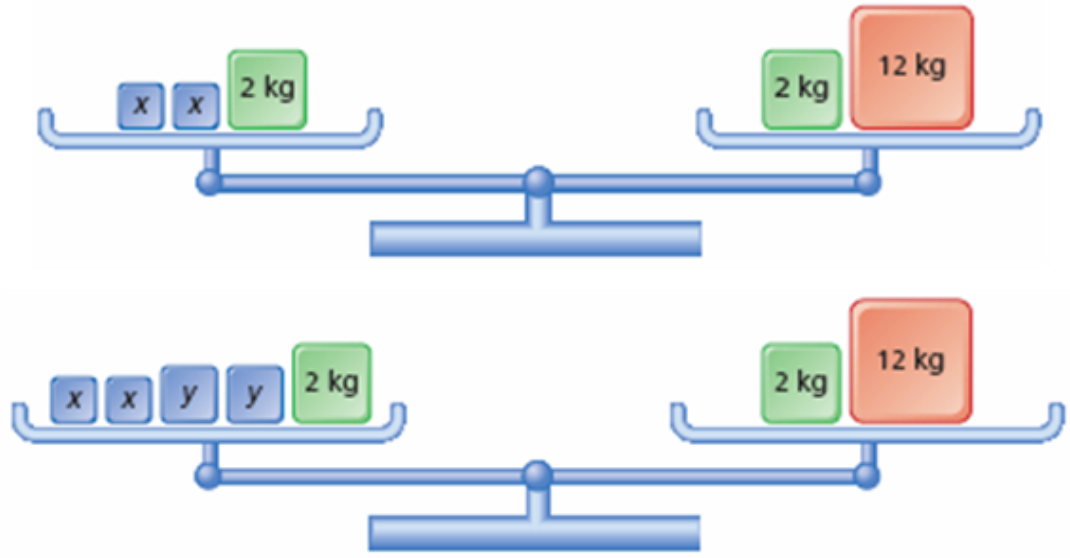
Solve the follwoing systems of equations using substitution

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

Method 2: Substitution

I like this one better

7.4 Using a Substitution Strategy to Solve a System of Linear Equations



Solving Systems of Equations

There are a number of different ways in which to solve systems of equations. The second method we are going to look at is called *substitution.*

When we refer to solving a system of equations, we want to **solve for a numerical value** **for one variable**.

Rules for Substitution as a method for solving a system of equations.

- **There must be the same number of equations as variables.**

  - If there are two variables, there must be two equations; three variables, three equations, etc.

- **One of the equations can easily be substituted into the other equation to solve for one variable.**

You try with Substitution

Solve the follwoing systems of equations using substitution

① $y - 3x = 5$ → solve for y → ③ $y = 3x + 5$

② $y + x = 3$

Sub ③ into ②

② $y + x = 3$

$3x + 5 + x = 3$

$4x + 5 = 3$

Solve for x

$4x + 5 - 5 = 3 - 5$

$\frac{4x}{4} = \frac{-2}{4}$

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

Sub into ③

$y = 3x + 5$

$y = 3\left(-\frac{1}{2}\right) + 5$

$= -\frac{3}{2} + \frac{5}{1}$ Need C.D

$= -\frac{3}{2} + \frac{10}{2}$

$y = \frac{7}{2}$

Point of Intersection

(x, y)

$\left(-\frac{1}{2}, \frac{7}{2}\right)$

Solve the follwoing systems of equations using substitution

Hint: Get rid of fraction by multiplying by LCM

① $\frac{1}{2}x + y = \frac{5}{2}$ ×2 → ③ $x + 2y = 5$

Solve for x ⑤ $x = -2y + 5$

② $\frac{1}{3}x - \frac{1}{3}y = \frac{-1}{3}$ ×3 → ④ $x - y = -1$

Sub into ④

$x - y = -1$

$-2y+5 - y = -1$

$-3y + 5 = -1$

Solve for y

$-3y + 5 - 5 = -1 - 5$

$\frac{-3y}{-3} = \frac{-6}{-3}$

$y = 2$

Sub into ⑤

$x = -2y + 5$

$-2(2) + 5$

$-4 + 5$

$x = 1$

Point of intersection

(1, 2)

Solve the follwoing systems of equations using substitution

Could have used the fractions

$\frac{1}{2}x + y = \frac{5}{2}$ ⟶ ① $y = \frac{-1x}{2} + \frac{5}{2}$

$\frac{1}{3}x - \frac{1}{3}y = \frac{-1}{3}$

2) **Substitution Method**

Steps:
i) Choose one equation and isolate one variable; this equation will be considered the first equation. (easiest one to get x= or y= from either eqn 1 or eqn 2)

ii) Substitute the solution from step 1 into the second equation and solve for the variable in the equation.

iii) Using the value found in step 2, substitute it into the first equation and solve for the second variable.

iv) Substitute the values for both variables into both equations to show they are correct.

Example: Solve the system by Substitution Method

① $3x + 5y = 8$

② $x + 2y = 3$ solve for x nice ③

$x = -2y + 3$

↓ sub into ①

$3(x) + 5y = 8$

$3(-2y+3) + 5y = 8$

$-6y + 9 + 5y = 8$

$-1y + 9 - 9 = 8 - 9$

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

$y = 1$

sub into eqn ③

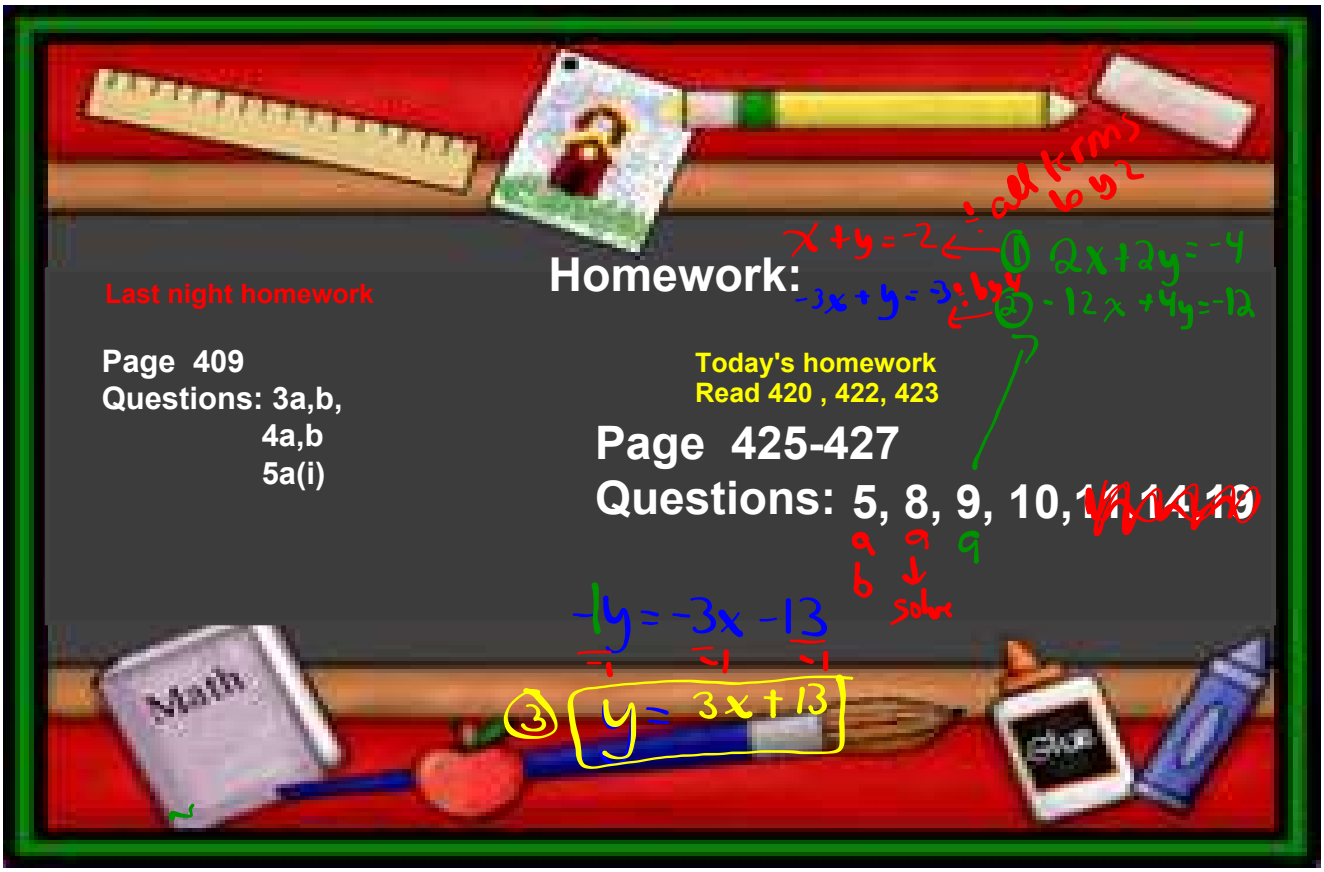
$x = -2y + 3$

$x = -2(1) + 3$

$x = -2 + 3$

$x = 1$

point of intersection is $(1, 1)$


Homework:
Last night homework
Page 409
Questions: 3a,b,
4a,b
5a(i)
Today's homework
Read 420 , 422, 423
Page 425-427
Questions: 5, 8, 9, 10,
Math