Section 7.2 – Solve Systems by Graphing

A linear system of equations two equations of linear functions containing the same variables

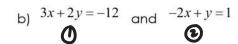
The solution to a linear system is the point (x, y) that satisfies both equations. (It's where the two lines intersect.)

Example 1: Determine the solution to the linear system.

a)
$$y = -\frac{2}{3}x + 1$$
 and $y = x - 4$

solution : ((3,-1))

check:

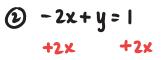


rewrite in slope-intercept form (y = mx + b)

①
$$3x + 2y = -12$$
 $-3x$
 $-3x$

$$\frac{2y}{2} = \frac{-3x - 12}{2}$$

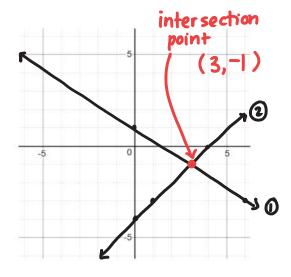
$$y = -\frac{3}{2}x - 6$$

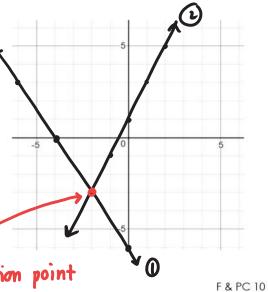




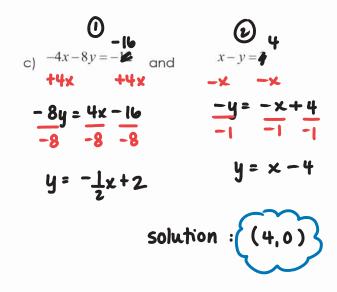
solution: (-2,-3)

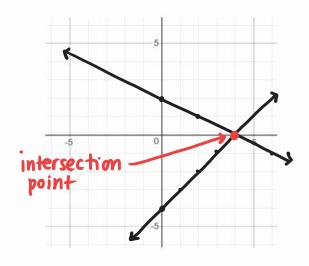






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Example 4: Bill received and sent 60 text messages in one weekend. He sent 10 more messages than he received. Find the number of sent and received texts.

a) Write a linear system to model this situation.

Let
$$x = \#$$
 of sent texts

Eqn 1: $x + y = 60$

(total texts)

Let
$$y = \#$$
 of received texts
Eqn 2: $x - y = 10$ or $x = 10 + y$
(relation ship between sent

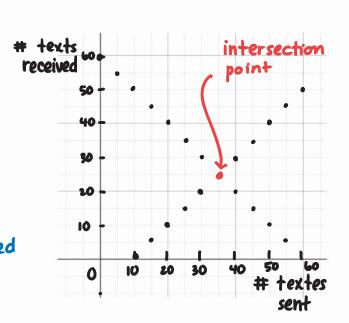
received texts)

b) Graph the linear system then solve the problem. How many text messages did Bill send and how many did he receive?

①
$$x+y=60$$
 ② $x-y=10$
 $-x$ $-x$
 $y=-x+60$ $-y=-x+10$
 $-y=x-10$

Do not connect the points (discrete data)

(35,25) y # of received texts



Practice: 7.2 Worksheet and p.409 #3, 4, 5a, 7ab

of sent texts

Mrs. Donnelly

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