

East Los Angeles College
 Department of Mathematics
 Math 115
 Test 2

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 Solutions

Solve the following equations for x and write your answer in set notation.

1) $2x - 8 \geq 2$
 $\quad + 8 \quad + 8$

$$\frac{2x}{2} \geq \frac{10}{2}$$

$$\{x \mid x \geq 5\} \quad \checkmark$$

2) $x - 11 < -4$

$$\quad + 11 \quad + 11$$

$$\{x \mid x < 7\}$$

3) $-x + 5 \geq -3$
 $\quad -5 \quad -5$

$$\frac{-x}{-1} \geq \frac{-8}{-1}$$

$$\{x \mid x \leq 8\} \quad \checkmark$$

4) $3x - 4 > x - 8$

$$\quad + 4 \quad + 4$$

$$3x > x - 4$$

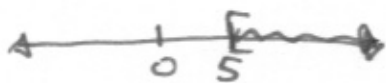
$$\quad -x \quad -x$$

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

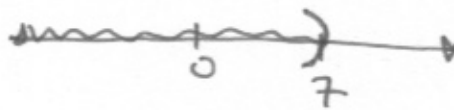
$$\{x \mid x > -2\} \quad \checkmark$$

Graph the following solutions found in the problems indicated below.

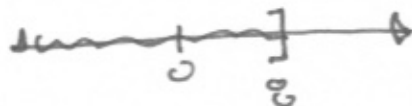
5) Problem 1



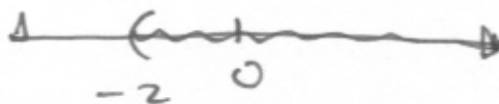
6) Problem 2



7) Problem 3



8) Problem 4



Solve for the indicated variable.

9) $d = rt$ for r

$$\frac{d}{t} = \frac{r}{1}$$

$$\frac{d}{t} = r$$

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10) $p = 2l + 2w$ for w

$$-2l \quad -2l$$

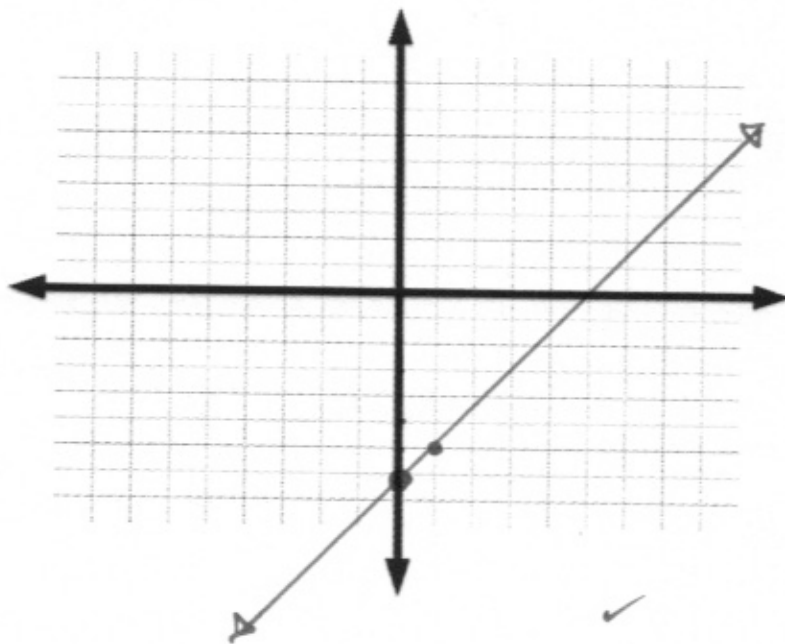
$$\frac{p - 2l}{2} = \frac{2w}{2}$$

$$\frac{p - 2l}{2} = w$$

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Graph the following linear equations

11) $x - y = 7$;



$$x - y = 7$$

$$-x \quad -x$$

$$-y = -x + 7$$

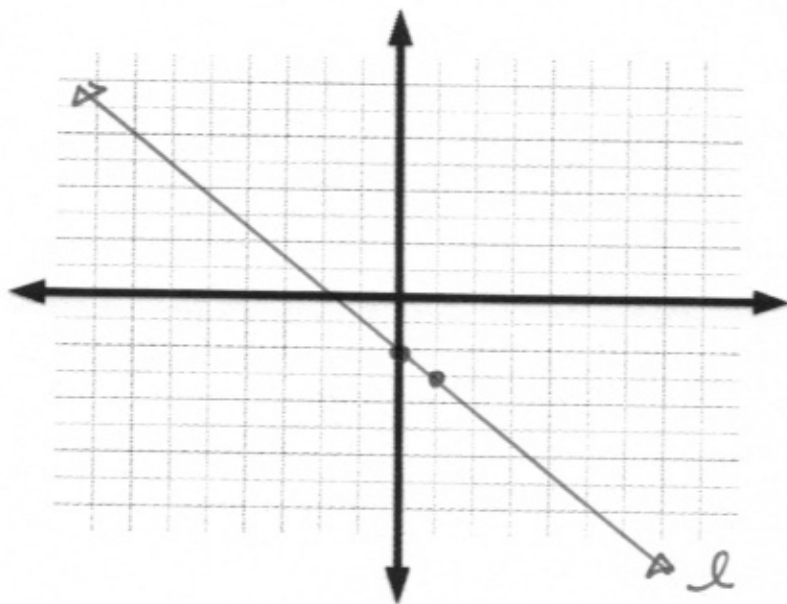
$$y = \frac{-x}{-1} + \frac{7}{-1}$$

$$y = x - 7$$

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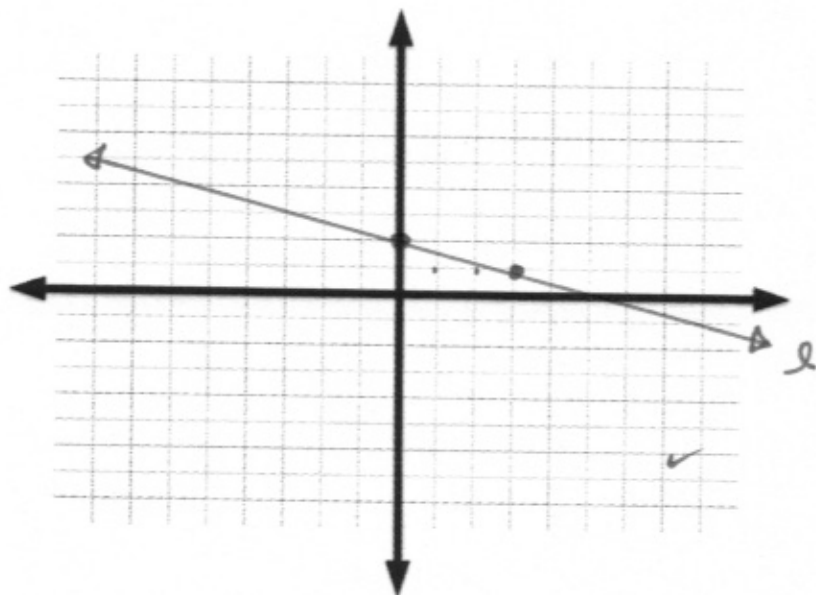
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12) $x + y = -2$



$$\begin{aligned}
 & x + y = -2 \\
 & -x \qquad \qquad -x \\
 & \underline{y = -x - 2} \\
 & m = -1 \ ; \ b = -2
 \end{aligned}$$

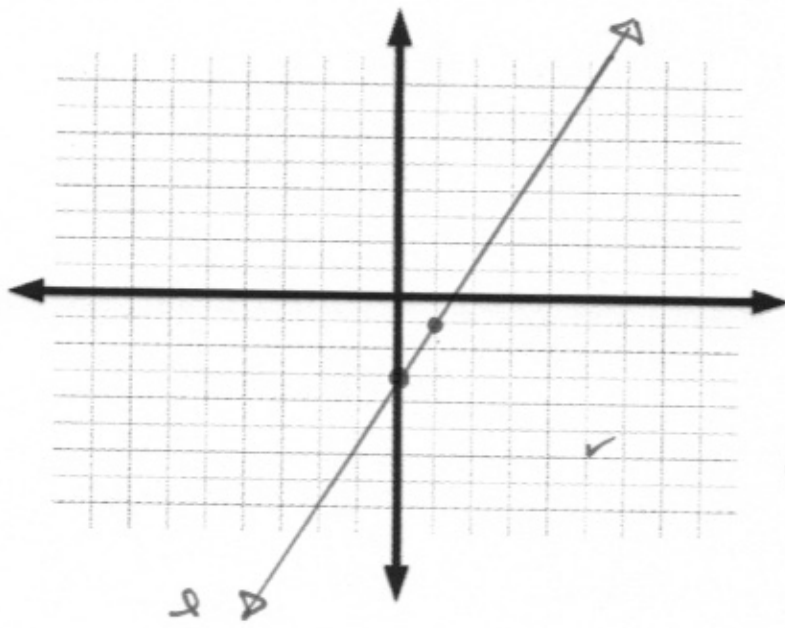
13) $x + 3y = 6$



$$\begin{aligned}
 & x + 3y = 6 \\
 & -x \qquad \qquad -x \\
 & \underline{\frac{3}{3}y = \frac{-x + 6}{3}} \\
 & y = \frac{-1}{3}x + \frac{6}{3} \\
 & \underline{y = -\frac{1}{3}x + 2} \\
 & m = -\frac{1}{3} \ ; \ b = 2
 \end{aligned}$$

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14) $2x - y = 3$

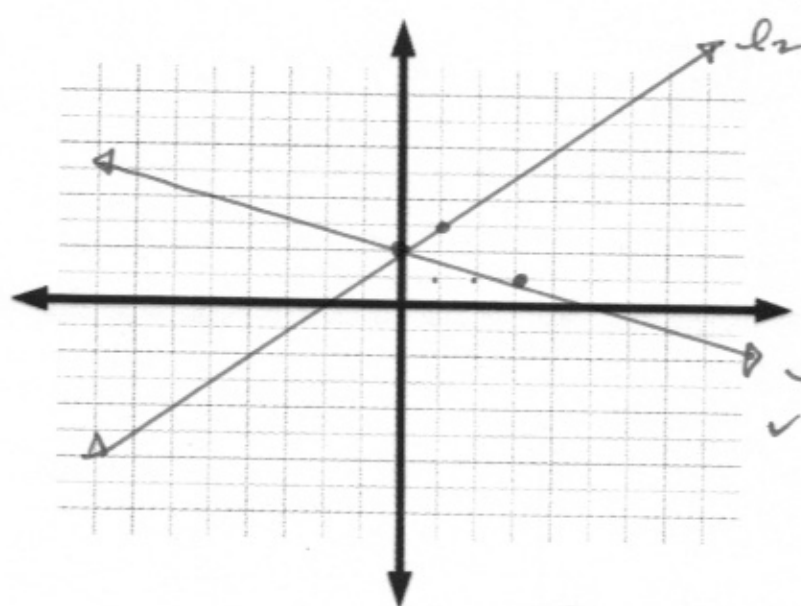


$$\begin{aligned}
 2x - y &= 3 \\
 -2x &\quad -2x \\
 \hline
 -y &= -2x + 3 \\
 \frac{-y}{-1} &= \frac{-2x + 3}{-1} \\
 y &= \frac{-2x}{-1} + \frac{3}{-1} \\
 y &= 2x - 3
 \end{aligned}$$

$m = 2$; $b = -3$

15) Solve the linear system by graphing.

l_1 $x + 3y = 6$
 l_2 $x - y = -2$



(l_1)

$$\begin{aligned}
 x + 3y &= 6 \\
 -x &\quad -x \\
 \hline
 3y &= -1x + 6 \\
 \frac{3y}{3} &= \frac{-1x + 6}{3}
 \end{aligned}$$

$$y = -\frac{1}{3}x + \frac{6}{3}$$

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

(l_2)

$$\begin{aligned}
 x - y &= -2 \\
 -x &\quad -x \\
 \hline
 -y &= -x - 2
 \end{aligned}$$

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

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

(l_2) $y = x + 2$

$(0, 2)$

Determine the equation of the line that:

- 16) Passes through the point $(4, -1)$ with slope $-\frac{1}{2}$

$$y - y_1 = m(x - x_1)$$

$$y - (-1) = -\frac{1}{2}(x - 4)$$

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

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

- 17) Passes through the point $(0, -5)$ and is parallel to the equation $2x + y = 3$;

$$y - y_1 = m(x - x_1)$$

$$y - (-5) = -2(x - 0)$$

$$y + 5 = -2x$$

$$y = -2x - 5$$

- 18) Passes through the point $(1, 2)$ and is perpendicular to the equation $3x + y = -4$

$$y - y_1 = m(x - x_1)$$

$$y - 2 = \frac{1}{3}(x - 1)$$

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

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

work

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

19) Passes through the points $(1, -2)_1$ and $(4, 1)_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{1 - (-2)}{4 - 1}$$

$$m = \frac{1 + 2}{3}$$

$$m = \frac{3}{3}$$

$$m = 1$$

$$y - y_1 = m(x - x_1)$$

$$y - (-2) = 1(x - 1)$$

$$y + 2 = x - 1$$

$$y = x - 3$$

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20. What's your name?

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