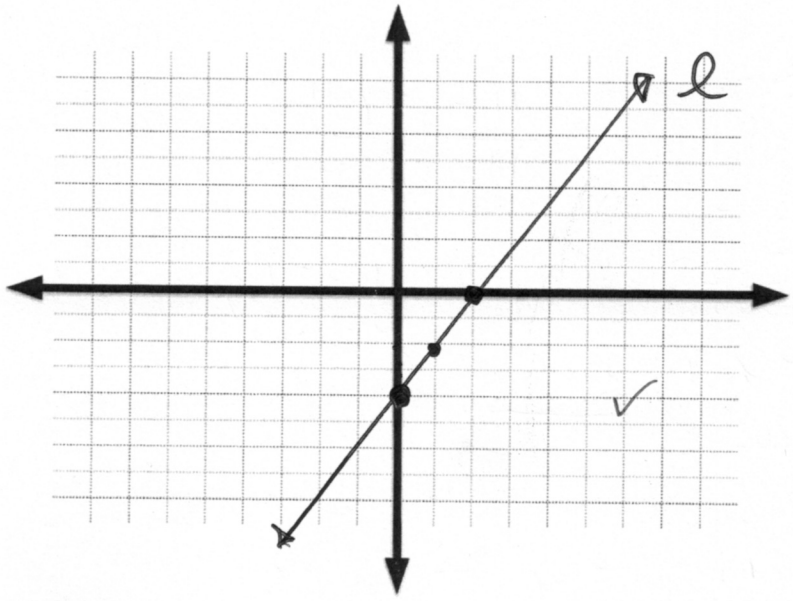
East Los Angeles College
Department of Mathematics
Math 115
Test 2

Graph the following linear equations.

1) $2x - y = 4$

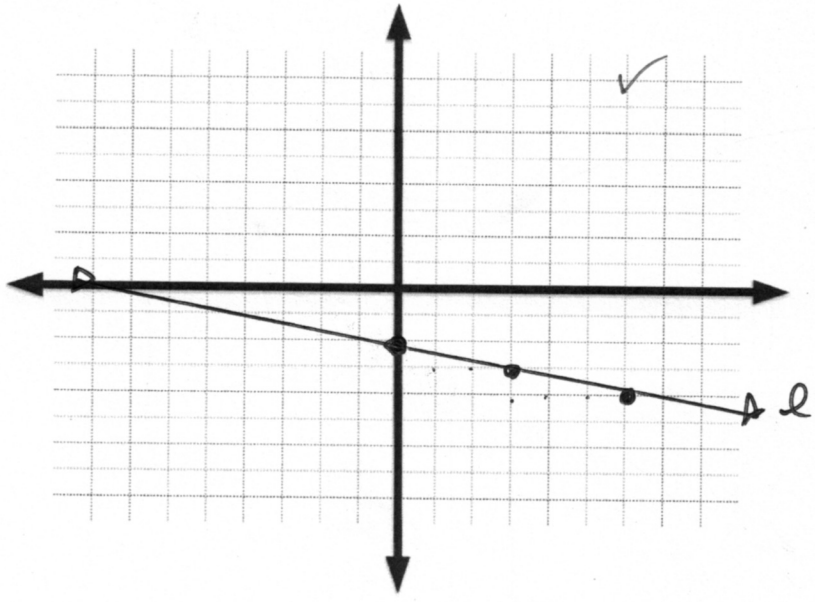


$2x - y = 4$
$-2x \quad -2x$

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

$y = 2x - 4$

2) $x + 3y = -6$



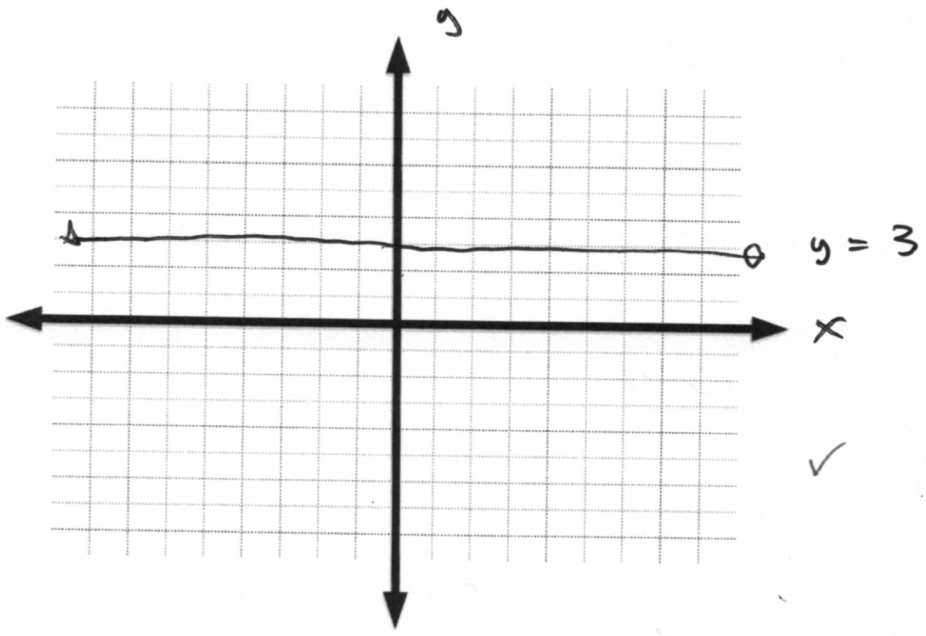
$x + 3y = -6$
$-x \quad -x$

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

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

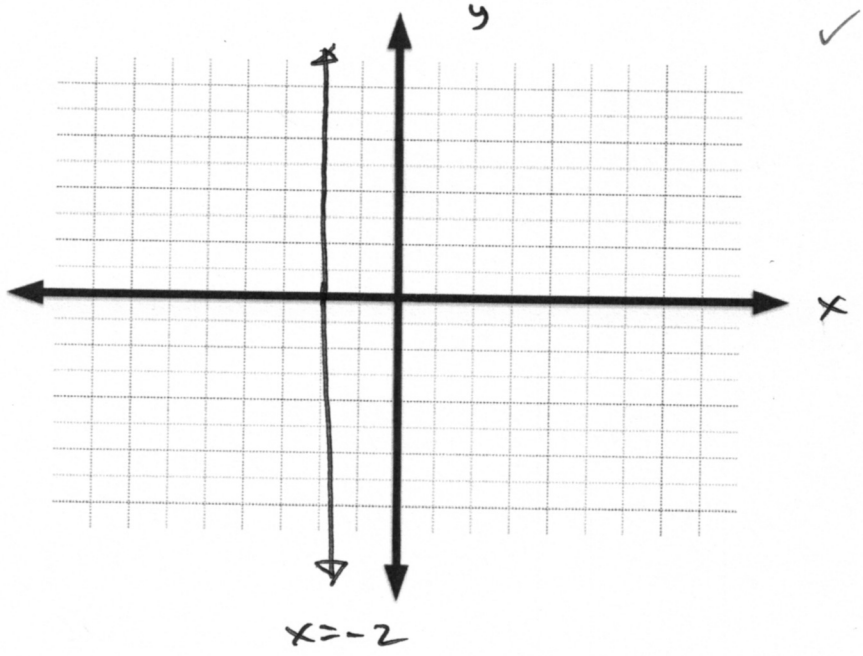
$y = -\frac{1}{3}x - 2$

3) $y = 3$



✓

4) $x = -2$



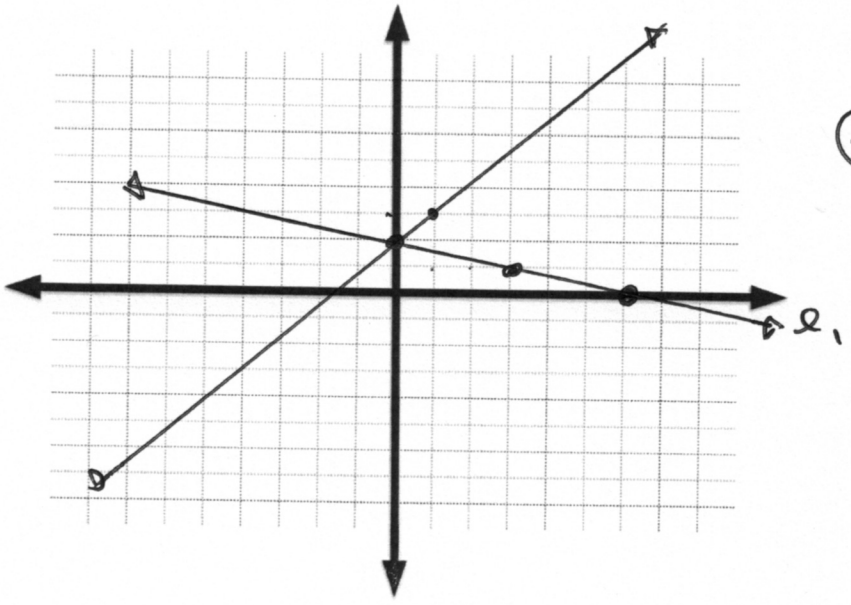
✓

2 ✓

5) Solve the linear system by graphing.

ℓ_1 $x+3y=6$

ℓ_2 $x-y=-2$



ℓ_1 $x+3y=6$

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

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

ℓ_2 $x-y=-2$

$-x \quad -x$

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

$y = x+2$

$(0, 2)$ ✓ ✓

Determine the equation of the line that:

6) Passes through the point $(4,-1)$ (x y), with slope $-\frac{1}{2}$ (m)

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

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

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

$-1 \quad -1$

$y = -\frac{1}{2}x + 1$ ✓ ✓

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

$-2x \quad -2x$

$y = -2x + 3$

$m = -2$

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

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

$y+5 = -2x$

$-5 \quad -5$

$y = -2x - 5$ ✓ ✓

8 ✓ 10 ✓

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

$-3x \quad -3x$

$y = -3x - 4$

$m = -3$

$\perp$

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

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

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

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

$+2 \qquad +2$

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

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

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

✓ ✓

9) Passes through the points $(1,-2)$ (x y) and $(4,1)$ (x y)

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

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

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

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

$m = 1$

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

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

$y + 2 = x - 1$

$-2 \qquad -2$

$\boxed{y = x - 3}$

✓ ✓

4 ✓

10) Solve the linear system by the addition method.

ℓ_1 $2x - 5y = 7$; $-2(2x - 5y) = -2 \cdot 7$

ℓ_2 $4x + y = 3$ $\quad -4x + 10y = -14$

ℓ_1 $-4x + 10y = -14$

ℓ_2 $4x + y = 3$

$11y = -11$

$\frac{11y}{11} = \frac{-11}{11}$

$y = -1$

Back Sub

$-4x + 10(-1) = -14$

$-4x - 10 = -14$

$+10 \quad +10$

$-4x = -4$

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

$x = 1$

$(1, -1)$ ✓ ✓

11) Solve the linear system by the ~~elimination~~ substitution method.

ℓ_1 $x + 3y = -3$; $x + 3y = -3$ (−2)

ℓ_2 $3x - y = 11$ $\quad \ell_1 x = -3y - 3$

$3(-3y - 3) - y = 11$

$-9y - 9 - y = 11$

$-10y - 9 = 11$

$+9 \quad +9$

$\frac{-10y}{-10} = \frac{20}{-10}$

$y = -2$

use back sub

$x + 3(-2) = -3$

$x - 6 = -3$

$+6 \quad +6$

$x = 3$

$(3, -2)$ ✓ ✓ 4 ✓

12. What's your name?

Solutions