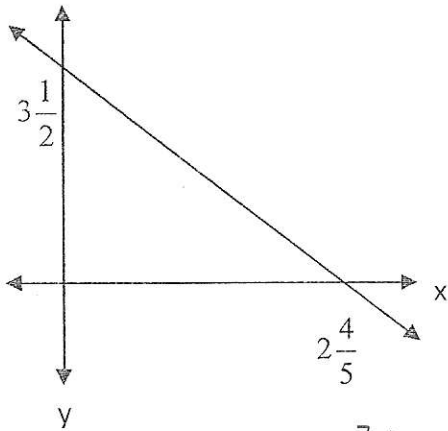


Show all necessary steps Clearly, Neatly, and Systematically to receive full credit. Any incorrect statement will be penalized.

1. Write the equation of the line in standard form.



$$y = mx + b$$

$$y = -\frac{5}{4}x + \frac{7}{2}$$

$$\frac{5}{4}x + y = \frac{7}{2}$$

$$5x + 4y = 14 //$$

$$(0, 3\frac{1}{2}) \rightarrow (0, \frac{7}{2})$$

$$(2\frac{4}{5}, 0) \rightarrow (\frac{14}{5}, 0)$$

$$m = \frac{3\frac{1}{2} - 0}{0 - 2\frac{4}{5}}$$

$$= \frac{\frac{7}{2}}{-\frac{14}{5}}$$

$$= \frac{7}{2} \cdot -\frac{5}{14}$$

$$= -\frac{5}{4}$$

2. Solve: $Y = C + bY + I + G + N$ for Y .

$$Y - bY = C + I + G + N$$

$$Y(1 - b) = C + I + G + N$$

$$Y = \frac{C + I + G + N}{1 - b} //$$

3. Find the height of a right circular cylinder whose volume is 32π cubic inches and whose radius is 2 inches.

$$V = 32\pi$$

$$r = 2$$

$$h = ?$$

$$V = \pi r^2 h$$

$$32\pi = \pi (2)^2 h$$

$$32\pi = 4\pi h$$

$$\frac{32\pi}{4\pi} = h$$

$$8 = h //$$

4. Solve: $\frac{2x+1}{2} - \frac{x+1}{5} = \frac{3x+1}{4} - \frac{7x-4}{2}$.

$$20 \cdot \left(\frac{2x+1}{2} - \frac{x+1}{5} \right) = \left(\frac{3x+1}{4} - \frac{7x-4}{2} \right) \cdot 20$$

$$10(2x+1) - 4(x+1) = 5(3x+1) - 10(7x-4)$$

$$20x + 10 - 4x - 4 = 15x + 5 - 70x + 40$$

$$16x + 6 = -55x + 45$$

$$71x + 6 = 45$$

$$71x = 39$$

$$x = \frac{39}{71}$$

$$\left\{ \frac{39}{71} \right\} //$$

5. Simplify: $10 \left[\frac{1}{4} \left(\frac{2}{3}x - \frac{1}{2} \right) + \frac{1}{10} \left(\frac{5}{2}x - \frac{15}{4} \right) \right]$.

$$= 10 \left[\frac{1}{6}x - \frac{1}{8} + \frac{1}{4}x - \frac{3}{8} \right]$$

$$= 10 \left[\frac{5}{12}x - \frac{1}{2} \right]$$

$$= \frac{25}{6}x - 5 //$$

6. Solve: $0.9(z-3) - 0.2(z-5) = 0.4(z+1) + 0.3z - 2.1$.

$$0.9z - 2.7 - 0.2z + 1 = 0.4z + 0.4 + 0.3z - 2.1$$

$$0.7z - 1.7 = 0.7z - 1.7$$

$$-1.7 = -1.7$$

$$\{ \mathbb{R} \} //$$

side

$$2 \frac{1}{4} \cdot \frac{2}{3} = \frac{1}{6}$$

$$\frac{1}{4} \cdot \frac{1}{2} = \frac{1}{8}$$

$$\frac{1}{18} \cdot \frac{3}{2} = \frac{1}{4}$$

$$2 \frac{1}{18} \cdot \frac{15}{4} = \frac{3}{8}$$

$$\frac{1}{6} + \frac{1}{4}$$

$$\frac{2}{12} + \frac{3}{12}$$

$$\frac{5}{12}$$

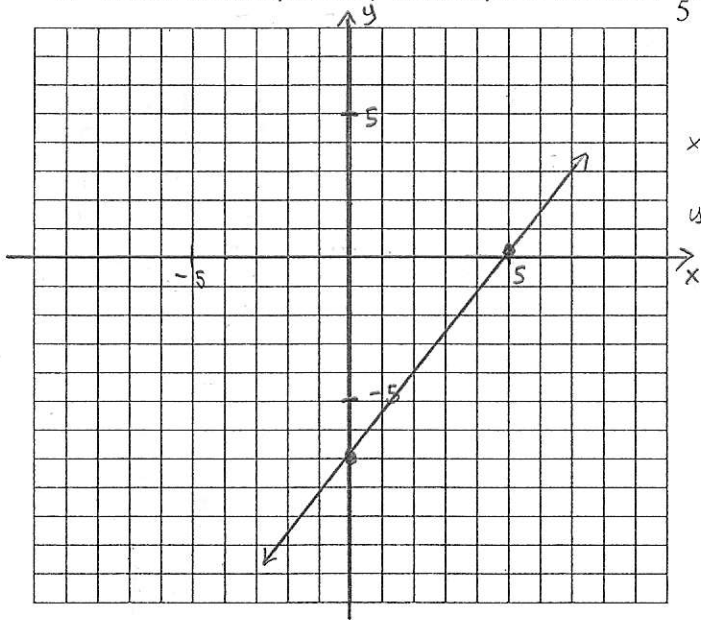
$$- \frac{1}{8} - \frac{3}{8}$$

$$- \frac{4}{8}$$

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

$$5 \frac{10}{1} \cdot \frac{5}{12} = \frac{25}{6}$$

7. Find x-intercept and y-intercept of the line: $\frac{2}{5}x - \frac{2}{7}y = 2$. Then graph.



	x	y
x-int	5	0
y-int	0	-7

$$\frac{2}{5}x - \frac{2}{7}(0) = 2$$

$$\frac{2}{5}x = 2$$

$$x = \frac{2}{1} \cdot \frac{5}{2}$$

$$x = 5$$

$$\frac{2}{5}(0) - \frac{2}{7}y = 2$$

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

$$y = \frac{2}{1} \cdot \left(-\frac{7}{2}\right)$$

$$y = -7$$

8. A pension fund owns 2000 fewer shares in mutual stock funds than mutual bond funds. Currently, the stock funds sell for \$12 per share, and the bond funds sell for \$15 per share. How many shares of each does the pension fund own if their total value is \$165000? (make sure to show in 3-step format)

① # of shares of stock funds = $x - 2000$

of shares of bond funds = x

② $12(x - 2000) + 15x = 165000$

$$12x - 24000 + 15x = 165000$$

$$27x = 189000$$

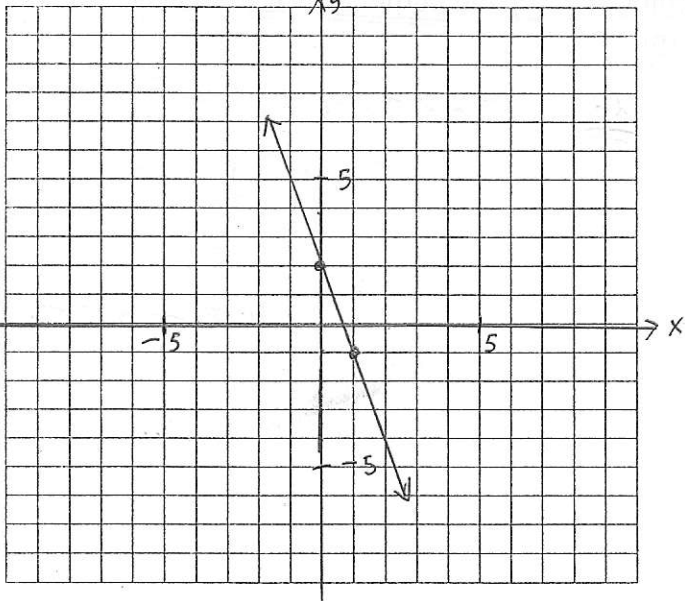
$$x = \frac{189000}{27}$$

$$x = 7000$$

$$\begin{array}{r} \text{side} \\ 7000 \\ 27 \overline{) 189000} \\ \underline{-189} \end{array}$$

③ 7000 shares of bonds funds &
5000 shares of stock funds.

9. Find the slope and y-intercept of the line: $-3.9x - 1.3y = -2.6$. Then graph.



$$10 (-3.9x - 1.3y) = (-2.6) \cdot 10$$

$$-39x - 13y = -26$$

$$-13y = 39x - 26$$

$$y = \frac{39x}{-13} - \frac{26}{-13}$$

$$y = -3x + 2$$

$$m = -3 //$$

$$y\text{-int} = (0, 2) //$$

10. The measure of one angle is 10° more than 3 times another angle. Find the measure of each angle if they are complementary. (make sure to show in 3-step format)

① measure of one angle = $3x + 10$
measure of another angle = x

② $x + (3x + 10) = 90$

$$4x + 10 = 90$$

$$4x = 80$$

$$x = 20$$

③ measure of one angle = 70°
measure of another angle = $20^\circ //$

11. Find the equation of the line which passes through the point $(-3, 2)$ and perpendicular to the line $-2x + 3y + 10 = 5$. Write the result in slope-intercept form.

$$\underline{l_1} \quad (-3, 2); m = ?$$

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

⊥

l_2

$$-2x + 3y + 10 = 5$$

$$-2x + 3y = -5$$

$$3y = 2x - 5$$

$$y = \frac{2}{3}x - \frac{5}{3}$$

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

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

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

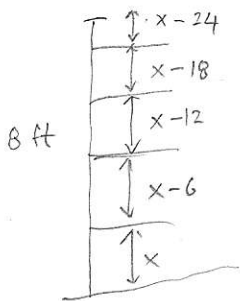
$$y - 2 = -\frac{3}{2}(x + 3)$$

$$y - 2 = -\frac{3}{2}x - \frac{9}{2}$$

$$y = -\frac{3}{2}x - \frac{9}{2} + 2$$

$$y = -\frac{3}{2}x - \frac{5}{2} //$$

12. A carpenter wants to put four shelves on an 8-foot wall so that the five spaces created decrease by 6 inches as we move up the wall. If the thickness of each shelf is $\frac{3}{4}$ inch, how far will the bottom shelf be from the floor? (make sure to show in 3-step format)



- ① measure of 1st space (bottom) = x
 " 2nd " = $x - 6$
 " 3rd " = $x - 12$
 " 4th " = $x - 18$
 " 5th " = $x - 24$

$$\textcircled{2} \quad x + (x - 6) + (x - 12) + (x - 18) + (x - 24) + 4\left(\frac{3}{4}\right) = 8 \text{ (12)}$$

$$5x - 60 + 3 = 96$$

$$5x - 57 = 96$$

$$5x = 153$$

$$x = \frac{153}{5}$$

$$x = 30.6$$

- ③ 30.6 in from floor //