

Show all necessary steps clearly, neatly, and systematically to receive full credit.

1. Solve: $\left| \frac{1}{4}x - \frac{3}{8} \right| - \frac{2}{3} = -\frac{1}{2}$

$$\left| \frac{1}{4}x - \frac{3}{8} \right| = -\frac{1}{2} + \frac{2}{3}$$

$$\left| \frac{1}{4}x - \frac{3}{8} \right| = \frac{1}{6}$$

$$\frac{1}{4}x - \frac{3}{8} = \frac{1}{6} \quad \text{or} \quad \frac{1}{4}x - \frac{3}{8} = -\frac{1}{6}$$

$$24 \left(\frac{1}{4}x - \frac{3}{8} \right) = \left(\frac{1}{6} \right) \cdot 24 \quad \text{or} \quad 24 \left(\frac{1}{4}x - \frac{3}{8} \right) = \left(-\frac{1}{6} \right) \cdot 24$$

$$6x - 9 = 4$$

$$6x - 9 = -4$$

$$6x = 13$$

$$6x = 5$$

$$x = \frac{13}{6}$$

$$x = \frac{5}{6}$$

$$\left\{ \frac{5}{6}, \frac{13}{6} \right\} //$$

2. Solve and write the solution set in interval notation: $\frac{5-1}{3-2}x > \frac{2}{9}$ $-\frac{2}{9} < \frac{5}{3} - \frac{1}{2}x \leq \frac{2}{9}$

$$18 \cdot \left(-\frac{2}{9} \right) < 18 \cdot \left(\frac{5}{3} - \frac{1}{2}x \right) \leq 18 \cdot \left(\frac{2}{9} \right)$$

$$-4 < 30 - 9x \leq 4$$

$$-34 < -9x \leq -26$$

$$\frac{-34}{-9} > x \geq \frac{-26}{-9}$$

$$\frac{34}{9} > x \geq \frac{26}{9}$$

$$-1.5 \rightarrow \left[\frac{26}{9}, \frac{34}{9} \right) //$$

3. ~~Solve and write the solution set in set-builder notation: $5|2x-3|+7 \geq 14$~~

Simplify : $\frac{3}{4}(3x-8) - \frac{2}{3} - \frac{5}{6}(x - \frac{1}{2})$

$$\frac{9}{4}x - 6 - \frac{2}{3} - \frac{5}{6}x + \frac{5}{12}$$

$$\frac{17}{12}x - \frac{25}{4} //$$

side

$$\frac{9}{4} - \frac{5}{6}$$
$$\frac{27}{12} - \frac{10}{12}$$

$$-\frac{6}{1} - \frac{2}{3} + \frac{5}{12}$$
$$-\frac{72}{12} - \frac{8}{12} + \frac{5}{12}$$

$$-\frac{75}{12} = \frac{5}{4}$$

*
** Note: this is an expression.
So we can't multiply by LCD to clear fractions.

4. Solve: $|2x-5| = |-3x+4|$

$$2x-5 = -3x+4$$

$$5x-5 = 4$$

$$5x = 9$$

$$x = \frac{9}{5}$$

or

$$2x-5 = -(-3x+4)$$

$$2x-5 = 3x-4$$

$$-5 = x-4$$

$$-1 = x$$

$$\left\{ -1, \frac{9}{5} \right\} //$$

5. Solve and graph the solution set: $2 - 5[3m - (m + 4)] > -2(m - 4)$

$$2 - 5[3m - m - 4] > -2m + 8$$

$$2 - 5[2m - 4] > -2m + 8$$

$$2 - 10m + 20 > -2m + 8$$

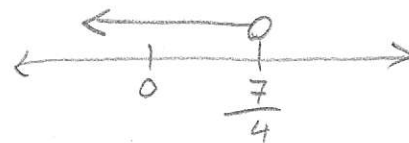
$$-10m + 22 > -2m + 8$$

$$22 > 8m + 8$$

$$14 > 8m$$

$$\frac{14}{8} > m$$

$$\frac{7}{4} > m$$



6. Solve and write the solution set in interval notation: $3x - 7 > -10$ or $5x + 2 \leq 22$

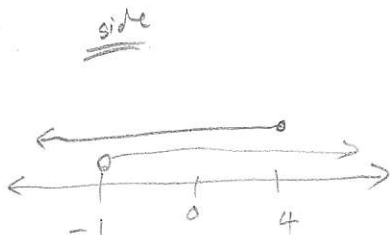
$$3x > -3$$

$$x > -1$$

$$5x \leq 20$$

$$x \leq 4$$

$$(-\infty, \infty) //$$



7. Solve: $\frac{3x+7}{5} - \frac{x-2}{6} = \frac{2x+1}{9}$

$$90 \left(\frac{3x+7}{5} - \frac{x-2}{6} \right) = 90 \left(\frac{2x+1}{9} \right)$$

$$18(3x+7) - 15(x-2) = 10(2x+1)$$

$$54x + 126 - 15x + 30 = 20x + 10$$

$$39x + 156 = 20x + 10$$

$$19x + 156 = 10$$

$$19x = -146$$

$$x = -\frac{146}{19}$$

$$\left\{ -\frac{146}{19} \right\}$$

side

$$5 = 5$$

$$6 = 2 \cdot 3$$

$$9 = 3^2$$

$$\text{LCD} = 2 \cdot 3^2 \cdot 5$$

$$= 90$$

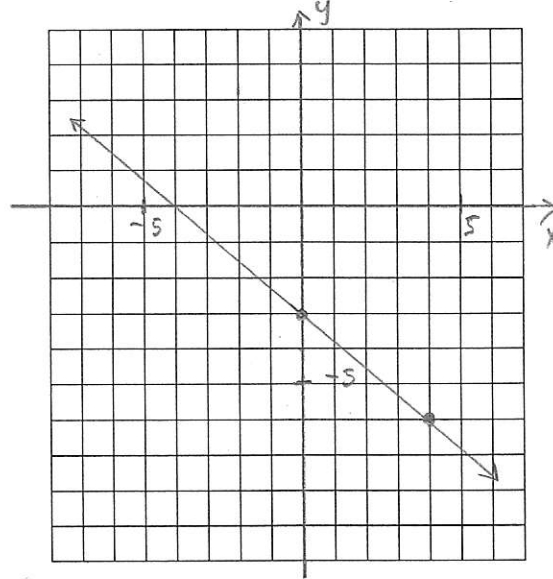
8. Solve for P: $A = P + Prt$

$$A = P(1 + rt)$$

$$\frac{A}{1+rt} = P //$$

9. Let $3x + 4y = -12$. Find the slope and y-intercept.

Then use them to graph.



$$3x + 4y = -12$$

$$4y = -3x - 12$$

$$y = -\frac{3}{4}x - \frac{12}{4}$$

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

Slope: $m = -\frac{3}{4}$

y-intercept: $(0, -3)$

10. Find the equation of the line contains the point $(5, -4)$ and $(-1, -2)$. Write the result in standard form.

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

$$= \frac{-2 - (-4)}{-1 - 5}$$

$$= \frac{2}{-6}$$

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

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

$$y - (-4) = -\frac{1}{3}(x - 5)$$

$$y + 4 = -\frac{1}{3}x + \frac{5}{3}$$

$$\frac{1}{3}x + y = \frac{5}{3} - 4$$

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

$$x + 3y = 5 - 12$$

$$x + 3y = -7 //$$

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

$$(2, -3), m = \frac{3}{5}$$

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

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

$$y + 3 = \frac{3}{5}x - \frac{6}{5}$$

$$y = \frac{3}{5}x - \frac{6}{5} - 3$$

$$y = \frac{3}{5}x - \frac{21}{5} //$$

parallel same slope.

//

l_1

l_2

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

$$5y = 3x + 5$$

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

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

$$m = \frac{3}{5}$$

12. In an isosceles triangle, one angle is 10 less than three times the measure of one of the equal angles. Find the measure of each angle.

① measure of $\angle 1 = x$
 " $\angle 2 = x$
 " $\angle 3 = 3x - 10$

② $x + x + 3x - 10 = 180$
 $5x - 10 = 180$
 $5x = 190$
 $x = 38$

③ measure of $\angle 1$ & $\angle 2$ are 38° and $\angle 3$ is 104° //

13. In an IRA account valued at 49050, a couple has twice as many shares of stock in Big Bank Corporation as in Safe Savings and Loan. If Big Bank sells for \$115 per share and Safe Savings sells for \$97 per shares, how many shares of each does the couple own?

① # of shares in BB = $2x$
 " SS = x

② $115(2x) + 97(x) = 49050$
 $230x + 97x = 49050$
 $327x = 49050$
 $x = 150$

③ # of shares in BB = 300
 " SS = 150 //

$$\begin{array}{r}
 \text{side} \\
 \hline
 150 \\
 327 \overline{) 49050} \\
 \underline{-327} \\
 1635 \\
 \underline{-1635} \\
 0 \\
 \underline{-0} \\
 0
 \end{array}$$