

Manipulating Equations - solve for x

$$15x - 3m = 27 + 9x + 3m$$

$$15x = 27 + 9x + 3m$$

$$\frac{6x}{6} = \frac{27}{6} + \frac{3m}{6}$$

$$x = \frac{9}{2} + \frac{1m}{2}$$

*reduce -
use calculator

Radical Equations

$$5 + 3\sqrt{x+4} = 8$$

$$\frac{3\sqrt{x+4}}{3} = \frac{3}{3}$$

$$(\sqrt{x+4})^2 = (1)^2$$

$$x+4 = 1$$

$$x = -3$$

$$*check \quad 5 + 3\sqrt{-3+4} = 8$$

Quadratic Formula

$$(\sqrt{10-x})^2 = (x)^2$$

$$10 - x = x^2$$

$$-x^2 - x + 10 = 0$$

$$a = -1$$

$$b = -1$$

$$c = 10$$

$$x = 1 \pm \sqrt{(-1)^2 - 4(-1)(10)}$$

$$x = \frac{1 \pm 6.4}{-2} = \frac{1 + 6.4}{-2} = \frac{7.4}{-2} = -3.7$$

$$= \frac{1 - 6.4}{-2} = \frac{-5.4}{-2} = 2.7$$

$$x = -3.7$$

Clearing Fractions

$$\frac{x}{5} + \frac{3x}{10} = 2$$

$$2 \cdot x + 2 \cdot \frac{3x}{10} = 2 \cdot 2$$

$$10 \cdot x + \frac{15x}{10} = 10 \cdot 2$$

$$10x + 15x = 100$$

$$25x = 100$$

$$x = 4$$

Absolute Value (check)

$$5 - 8|-2x+2| = -75$$

$$-5$$

$$-8|-2x+2| = -80$$

$$|-2x+2| = 10$$

$$-2x+2 = 10$$

$$-2x = 8$$

$$x = -4$$

$$-2x+2 = -10$$

$$-2x = -12$$

$$x = 6$$

$$5 - 8|-2 \cdot -4 + 2| = -75$$

$$5 - 8|-2 \cdot 6 + 2| = -75$$

Graphing Systems

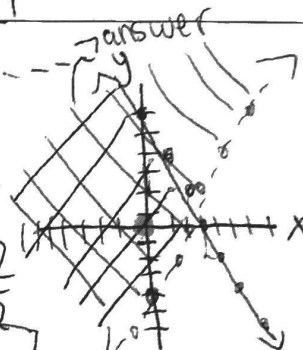
$$y > 2x - 4$$

$$4x + 2y \leq 12$$

$$-4x$$

$$\frac{2y}{2} \leq \frac{-4x+12}{2}$$

$$y \leq -2x + 6$$



$$2 \uparrow$$

$$0 > -4$$

$$0 \leq 6$$

Exponent Rules

$$\frac{x^2 \cdot x^7}{x^8} = x^{2+7-8} = x^1 = x$$

$$\left(\frac{x^3 y}{x y^4} \right)^{-2} = \left(\frac{x^4 y^1}{x^3 y^4} \right)^{-2} = \frac{x^{4 \cdot (-2)} y^{1 \cdot (-2)}}{x^{3 \cdot (-2)} y^{4 \cdot (-2)}} = \frac{x^{-8} y^{-2}}{x^{-6} y^{-8}} = x^{-8+6} y^{-2+8} = x^{-2} y^6 = \frac{y^6}{x^2}$$

Nth Root Equations

$$x^3 = 729 \quad \sqrt[3]{x^3} = \sqrt[3]{729}$$

$$x = 9$$

$$x^{\frac{1}{2}} = 16$$

$$(\sqrt{x})^2 = (16)^2$$

$$x = 256$$

Manipulating Inequalities Solve for m

$$2n - 3m > 7m - 6n + 2$$

$$\begin{array}{r} -2n \\ \hline -3m > 7m - 8n + 2 \\ -7m \end{array}$$

$$\begin{array}{r} -10m > -8n + 2 \\ \frac{-10}{-10} \end{array}$$

$$m < \frac{4n}{5} - \frac{1}{5}$$

Anything Else

$$\frac{x^2 y^8}{x^6 y^2} = x^{2-6} y^{8-2} = x^{-4} y^6 = \frac{y^6}{x^4}$$