

Evaluate each expression and simplify as much as possible.

$$\sqrt{\frac{18x^2y}{2y^3}}$$

$$\sqrt{-3}\sqrt{-12}$$

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

$$\frac{x^2 + 4x + 4}{x - 2} \div \frac{x^2 - 4}{5x - 10}$$

Write the polynomial equation that has the following solutions:  $\sqrt{3}$ ,  $-\sqrt{3}$  and 0.

Solve the following equations and inequalities. Check your solutions where necessary.

$$11 - 6x < 5 - 8x \quad (\text{Write solution in interval notation and graph it on a number line.})$$

$$|3x - 1| = 14$$

$$\frac{2}{x-3} + \frac{1}{x+5} = \frac{1}{(x+5)(x-3)}$$

$$x^2 - 7x - 8 = 0$$

$$x^2 + 4x + 2 = 0$$

$$\sqrt{x+4} + 2 = x$$

Solve the systems of linear equations. Write the solution as an ordered pair.

$$5x + y = 5$$

$$y = 5 - 5x$$

$$4x - 2y = 30$$

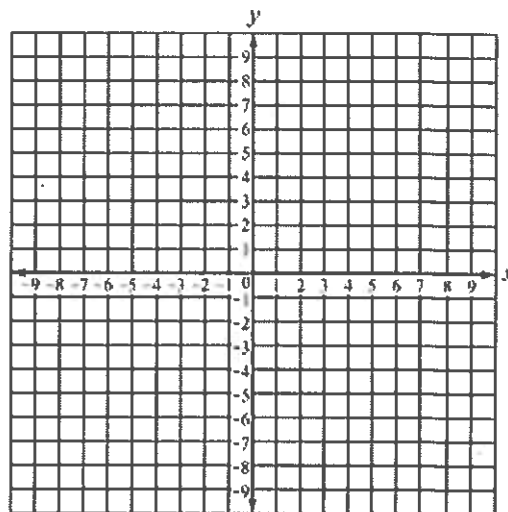
$$8x + 3y = 53$$

Part 4: Write the equation for each line based on the information provided.

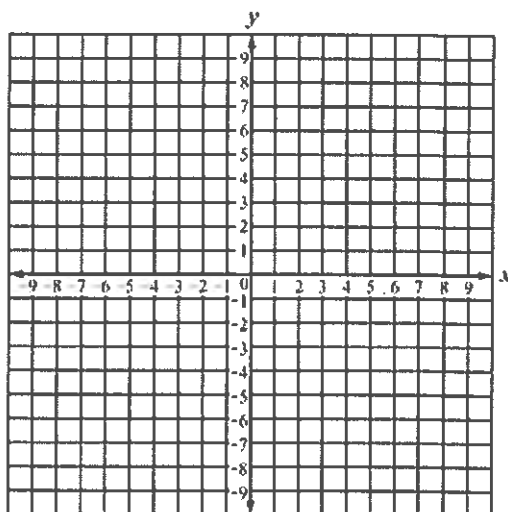
The line passing through the points  $(-3, 0)$  and  $(-3, 8)$

The line that is perpendicular to  $y = -3x + 1$  that passes through  $(-6, 2)$

Sketch a graph of the equation  $3x - 2y = 12$



Sketch a graph of the inequality  $y < \frac{1}{2}x - 2$



Suppose that  $y$  varies directly with the square of  $x$  and  $y = 24$  when  $x = 4$ . Write a direct variation equation that relates  $x$  and  $y$  and find  $y$  when  $x = 2$ .