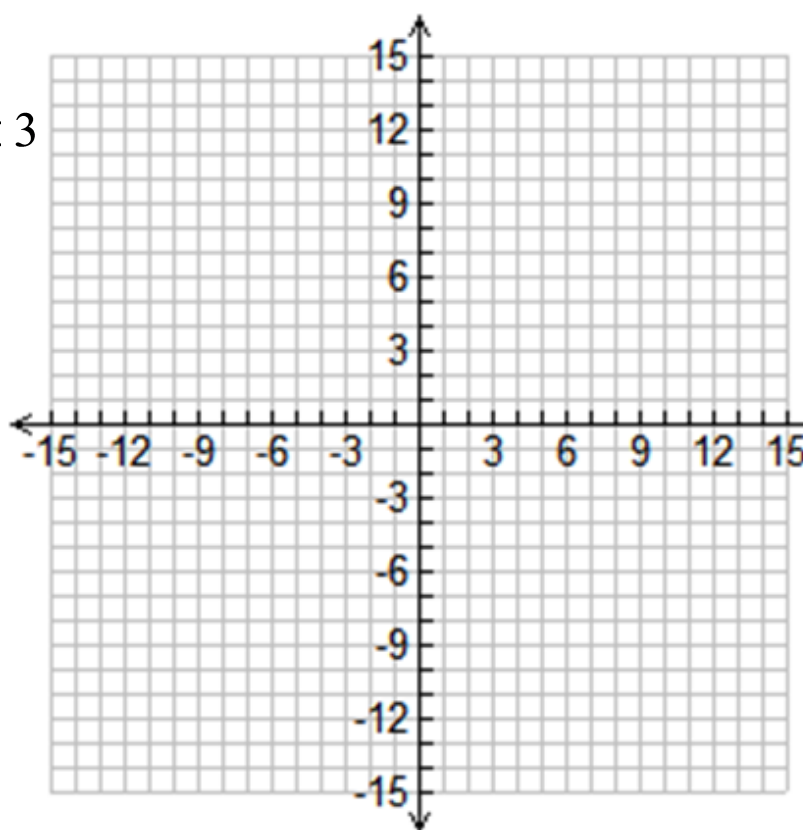


Graph the following Piecewise Function on the graph provided.

$$f(x) = \begin{cases} 3x + 12 & x \leq -3 \\ |x| & -3 < x < 3 \\ -3x + 12 & x \geq 3 \end{cases}$$



Reduce each radical to simplest form.

$$\sqrt{128}$$

$$\sqrt{243}$$

$$\sqrt{x^{16}}$$

$$\sqrt{x^{27}}$$

$$\sqrt{75x^{11}}$$

$$\sqrt{196x^8}$$

Solve the following equations by completing the square.

$$x^2 + 8x + 3 = 0$$

$$x^2 + 5x - 2 = 0$$

$$3x^2 - 12x + 7 = 0$$

$$5x^2 + 30x - 12 = 0$$

For the following:

- a) Solve each inequality and write as a compound inequality
- b) Write your answer in interval notation
- c) Graph on a number line

$$9|x + 8| + 10 < 55$$

$$2|10x + 8| - 1 \geq 73$$

Factor the following expressions:

$$x^2 - 25$$

$$9x^2 - 16y^2$$

$$3x^2 + 10x - 8$$

$$7x^2 - 12x - 4$$

Given the points $(-4, 3)$ and $(2, -9)$

- a) Write the equation of the line passing through the given points in point-slope form.
- b) Write the equation of the line passing through the given points in slope-intercept form
- c) Write the equation of the line parallel to part b passing through $(5, -8)$
- d) Write the equation of the line perpendicular to part b passing through $(-12, 3)$