

$$y = x^2 + 6x - 4$$

$$x = \frac{-b}{2a} = \frac{-(6)}{2(1)} = \frac{-6}{2} = -3$$

$$\text{axis: } x = -3$$

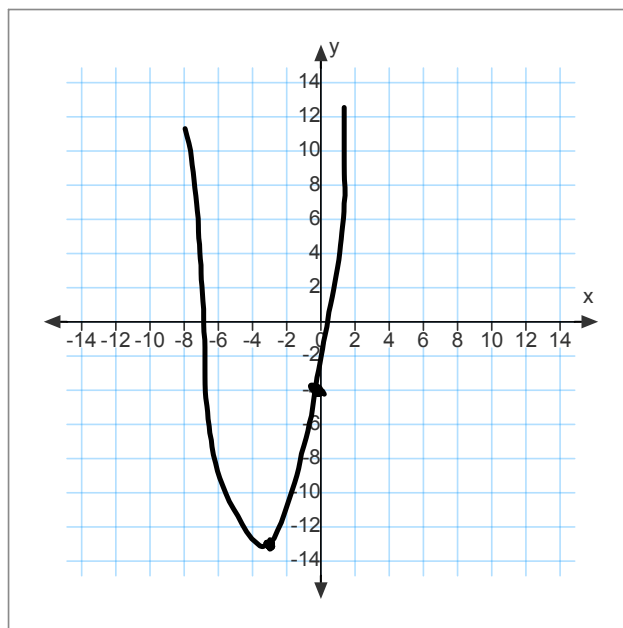
$$y = (-3)^2 + 6(-3) - 4$$

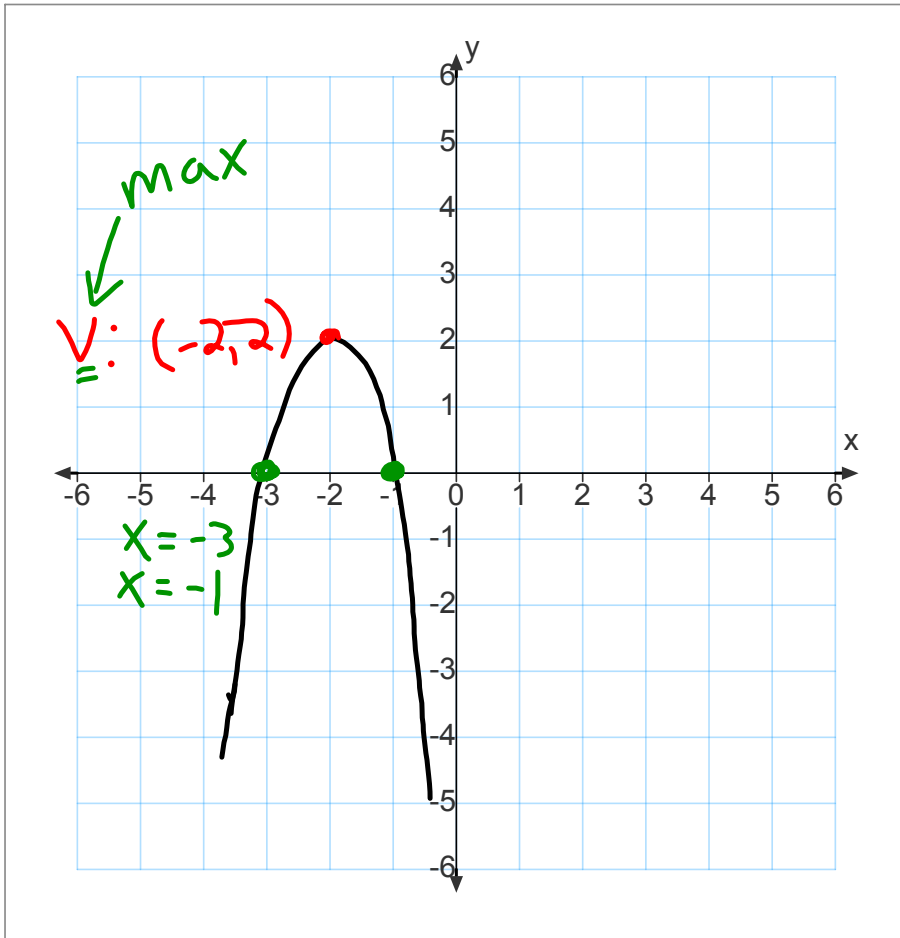
$$y = 9 - 18 - 4$$

$$-9 - 4$$

$$y = -13$$

$$\Rightarrow v: (-3, -13)$$





$$\begin{array}{r} x^2 - 9 = 0 \\ +9 \quad -9 \\ \hline \sqrt{x^2} = \sqrt{9} \\ x = 3, -3 \end{array}$$

$$\begin{array}{r} 4x^2 - 100 = 0 \\ +100 \quad -100 \\ \hline 4x^2 = 100 \\ \frac{4x^2}{4} = \frac{100}{4} \\ \sqrt{x^2} = \sqrt{25} \\ x = 5, -5 \end{array}$$

$$x^2 - 7 = 9$$

$$+7 \quad +7$$

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

$$x = 4, -4$$

$$x^2 + 36 = 0$$

$$-36 \quad -36$$

$$\sqrt{x^2} = \sqrt{-36}$$

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There are no real solutions

$$x^2 + 9 = 25$$

$$-9 \quad -9$$

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

$$x = -4, 4$$

$$ab=0$$
$$a=0 \quad b=0$$

$$(x-4)(3x-5)=0$$

$$\swarrow$$
$$x-4=0$$
$$+4 \quad +4$$

$$x=4$$

$$\searrow$$
$$3x-5=0$$
$$+5 \quad +5$$

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

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

$$x = 4, \frac{5}{3}$$

$$= \underline{x^2 - 3x - 10} = 0$$

$$(x+2)(x-5) = 0$$

$$\begin{array}{l} \swarrow \\ x+2=0 \\ \cancel{-2} \quad \cancel{-2} \end{array}$$

$$x = -2$$

$$\begin{array}{l} \searrow \\ x-5=0 \\ \cancel{+5} \quad \cancel{+5} \end{array}$$

$$x = 5$$

$$x = -2, 5$$

$$12x^2 + 56x + 60 = 0$$

$$4(3x^2 + 14x + 15) = 0$$

$$3x^2 + 5x + 9x + 15 = 0$$

$$x(3x+5) + 3(3x+5) = 0$$

$$(3x+5)(x+3) = 0$$

$$3x+5=0$$

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

$$x+3=0$$

$$x = -3$$

$$\begin{array}{r} 45 \\ 1 \overline{) 45} \\ 3 \overline{) 15} \\ 5 \overline{) 9} \end{array}$$

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

$$x = -\frac{5}{3}, -3$$

$$\begin{array}{l} a \quad b \rightarrow \\ x^2 + 4x + c \\ x^2 + 4x + 4 \\ c = 4 \\ \rightarrow (x+2)^2 \end{array}$$

$$\begin{array}{l} c = \left(\frac{b}{2}\right)^2 \\ c = \left(\frac{4}{2}\right)^2 \\ 2^2 = 4 \end{array}$$



$$x^2 + 6x + \cancel{6} = 0$$

$$x^2 + 6x + 9 = \cancel{-6} + 9$$

$$\sqrt{(x+3)^2} = \sqrt{9}$$

$$x+3 = \sqrt{9}$$

$$x + \cancel{3} = \pm 1.73$$

$$x = -1.27, -4.73$$

$$\left(\frac{b}{2}\right)^2$$

$$\left(\frac{6}{2}\right)^2 = 3^2 = 9$$