

ALGEBRA 1
WS 9.3

Name KEY
Date _____

1. Graph the function. State the number of solutions, and solve the equation.
If the equation has no real-number solution, write "no solution."

$x^2 - 9 = 0$ $a = \underline{1}$, $b = \underline{0}$, $c = \underline{-9}$

$x^2 + 0x - 9 = 0$

Axis of Symmetry:

$x = \frac{-b}{2a}$

$x = \frac{-0}{2(1)}$

$x = \frac{0}{2}$

$x = 0$

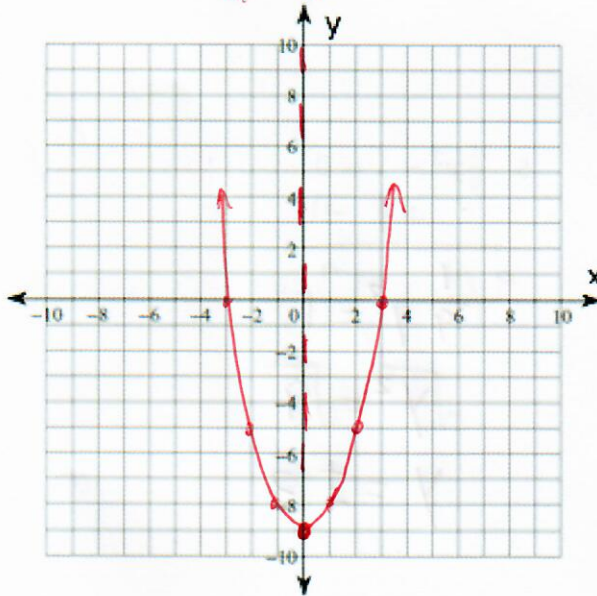
Vertex: $(-\frac{b}{2a}, y) \Rightarrow (0, -9)$

$y = x^2 - 9$

$y = (0)^2 - 9$

$y = -9$

axis of symmetry
 $x = 0$



SOLUTION: $x = -3, 3$

y-intercept: $(0, c) = (0, -9)$

Same as the vertex so need more points

x	$x^2 - 9$
1	$(1)^2 - 9 = 1 - 9 = -8$
2	$(2)^2 - 9 = 4 - 9 = -5$
3	$(3)^2 - 9 = 9 - 9 = 0$

2. Solve the same problem as above $x^2 - 9 = 0$ using square roots.

$$\sqrt{x^2} = \sqrt{9}$$

$x = \pm 3$

Solve each equation by finding square roots.

3. $x^2 - 49 = 0$

$$\begin{array}{r} +49 \quad +49 \\ \hline \sqrt{x^2} = \sqrt{49} \end{array}$$

$$x = \pm 7$$

4. $2m^2 - 128 = 0$

$$\begin{array}{r} +128 \quad +128 \\ \hline \frac{2m^2}{2} = \frac{128}{2} \end{array}$$

$$\sqrt{m^2} = \sqrt{64}$$

$$m = \pm 8$$

5. $\frac{1}{9}y^2 - 1 = 0$

$$\begin{array}{r} +1 \quad +1 \\ \hline 9\left(\frac{1}{9}y^2\right) = 9(1) \end{array}$$

$$\sqrt{y^2} = \sqrt{9}$$

$$y = \pm 3$$

6. $5p^2 + 45 = 0$

$$\begin{array}{r} -45 \quad -45 \\ \hline \frac{5p^2}{5} = \frac{-45}{5} \end{array}$$

$$\sqrt{p^2} = \sqrt{-9}$$

No real soln.

7. $\frac{1}{2}a^2 - 8 = 0$

$$\begin{array}{r} +8 \quad +8 \\ \hline 2\left(\frac{1}{2}a^2\right) = 2(8) \end{array}$$

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

$$a = \pm 4$$

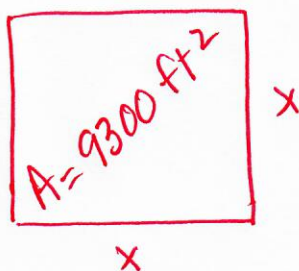
8. $-\frac{3}{4}x^2 + 5 = -22$

$$\begin{array}{r} -5 \quad -5 \\ \hline -\frac{4}{3}\left(-\frac{3}{4}x^2\right) = \frac{-4}{3}(-27) \end{array}$$

$$\sqrt{1x^2} = \sqrt{36}$$

$$x = \pm 6$$

9. You are mowing a square lawn that has an area of 9300 ft^2 . Approximate the side length of the lawn to the nearest tenth of a foot.



$$A = x^2$$

$$\sqrt{9300} = \sqrt{x^2}$$

$$96.4 \text{ ft} \approx x$$