UNIT 12 Quadratic Functions

REVIEW

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

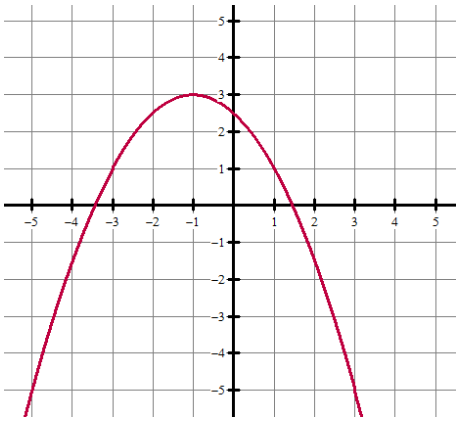
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

NAME:_____

DATE:_____

Find the roots, axis of symmetry, and vertex of the following.

1.

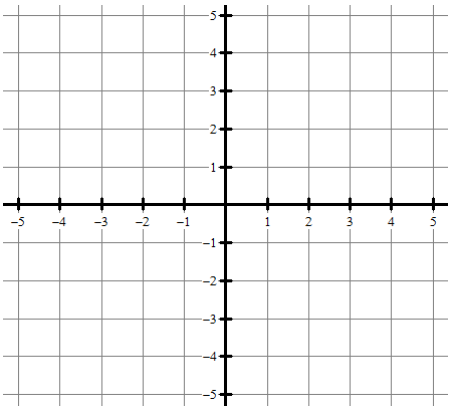


Roots:

Axis of Symmetry:

Vertex:

2. $y = 2x^2 - 3x - 1$



Roots:

Axis of Symmetry:

Vertex:

Solve each quadratic using the method given. Express your answer as a decimal. (rounded to hundredth)

3. GRAPHING

$$0 = -\frac{3}{4}x^2 - 8x - 1$$

4. Using SQUARE ROOTS

$$3m^2 - 5 = 19$$

5. QUADRATIC FORMULA

$$10 = 3p^2 - 5p - 8$$

Solve each quadratic using any method you want. Express your answer in simplest radical form.

6. $4t^2 - 12t - 21 = -9$

7. $2n = 3n^2 + 6n + 12$

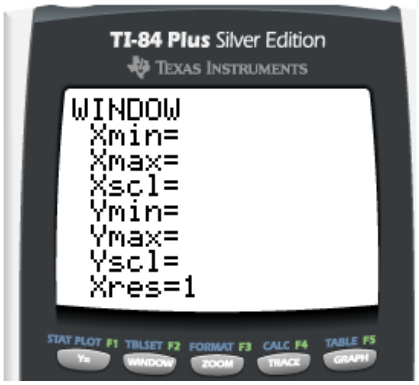
8. $8 = \frac{d^2}{3} - 1$

9. Find the zeros of $f(x) = 2x^2 - 3x - 12$

APPLICATION

10. Mr. Kelly shoots a bottle rocket into the air. The function shows the height of the rocket over time.
$s(t) = -16t^2 + 82t + 3$ where *t* is time in seconds and *s* is height of the rocket in feet

a. Graph with a "friendly" window. Record window here. →



b. Fill in the table.

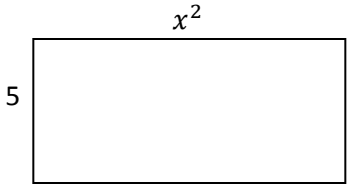
t	*s(t)*
2	
5	
	40

c. What is the maximum height of the rocket?

d. When will the rocket hit the ground?

e. What does *s*(3) mean? Find it!

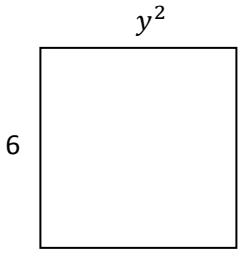
11. The rectangle has a **PERIMETER** of 140 inches.



a. Write an equation to represent this.

b. Solve for *x*.

12. The rectangle has an **AREA** of 240 in^2.



a. Write an equation to represent this.

b. Solve for *y*.