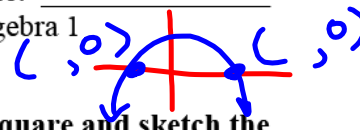


Name: _____

Date: _____

Regents Review: Completing the Square*(Let $y=0$)*

Algebra 1

**I. Find the zeros for the following functions by completing the square and sketch the graph.**

(1) $f(x) = x^2 - 8x + 11$

(2) $f(x) = -x^2 + 6x - 2$

(3) $f(x) = 3x^2 - 30x - 9$

(4) $f(x) = 4x^2 - 16x + 8$

$$f(x) = a(x-h)^2 + k$$

II. Find the vertex for the following quadratic functions by using the axis of symmetry formula and verify by completing the square. Sketch the graph.

$$\text{Axis of Symmetry: } x = -\frac{b}{2a}$$

(5) $f(x) = x^2 + 4x + 3$

(6) $f(x) = -x^2 - 16x - 7$

2nd Trace Max

$$f(x) = a(x-h)^2 + k$$

$$f(x) = -(x+8)^2 + 57$$

$$-(x - (-8))^2 + 57$$

↑ h ↑ k
Vertex (-8, 57)

(7) $f(x) = 2x^2 - 24x$

(8) $f(x) = -5x^2 - 10x - 1$

Name: _____
Regents Review: Quadratic Formula

Date: _____
 Algebra 1

Simplify the following radicals.

1. $\pm\sqrt{25}$
 ± 5

2. $3\sqrt{81}$
 $3(9) = 27$

3. $\sqrt{50}$

4. $2\sqrt{18}$

5. $\sqrt{48}$

6. $\sqrt{32}$

7. $3\sqrt{36}$

8. $2\sqrt{56}$

9. $4\sqrt{98}$

10. $\sqrt{240}$

11. $-2\sqrt{108}$
 $-2\sqrt{36} \sqrt{3}$
 $-2 \cdot 6 \cdot \sqrt{3}$
 $-12\sqrt{3}$

$-2\sqrt{108}$
 $-2\sqrt{9} \sqrt{12}$
 $-2 \cdot 3 \sqrt{12}$
 $-6\sqrt{4} \sqrt{3}$
 $-6 \cdot 2 \cdot \sqrt{3} = -12\sqrt{3}$

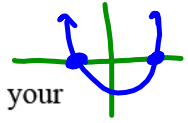
1
4
9
16
25
36
49
64
81
100
121

Solve the following equations using the quadratic formula.

12. Solve $x^2 - 3x - 7 = 0$. Round your **solutions** to the nearest hundredth.

13. Solve $2x^2 - 8x = 10$. Leave your **answers** in simplest radical form if necessary.

$$ax^2 + bx + c = 0$$



14. Solve $x^2 + 8x - 5 = 0$. Leave your roots in simplest radical form if necessary.

15. Solve $10 = 3x^2 - 14x$. Leave your zeros in simplest radical form if necessary.

5.3

$(-14)^2$

$14 + \sqrt{316}$ [Enter] $a=3$
 $\div 6$ $b=-14$
 $c=-10$

$14 - \sqrt{316}$ [Enter]

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

$x = \frac{-(-14) \pm \sqrt{(-14)^2 - 4(3)(-10)}}{2(3)}$

$x = \frac{14 \pm \sqrt{196 + 120}}{6} = \frac{14 \pm \sqrt{316}}{6}$

$x = \frac{14 \pm \sqrt{4 \cdot 79}}{6} = \frac{14 \pm 2\sqrt{79}}{6} = \frac{7 \pm \sqrt{79}}{3}$

1 4 9 16 25 36 49 64 81 100

16. Jacob wants to create a rectangular flower garden that contains an area of 10 m^2 . If the length needs to be 2 meters longer than the width, determine the dimensions of the garden, to the nearest hundredth of a meter.

$w = 2.32 \text{ m}$
 $L = 4.32 \text{ m}$

$$\frac{6 \pm 5\sqrt{79}}{4}$$