

Name: _____

Regents Review: Quadratic Formula

Date: _____

Algebra 1

Simplify the following radicals.

1. $\pm\sqrt{25}$

2. $3\sqrt{81}$

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. $-2\sqrt{108}$

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.

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

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

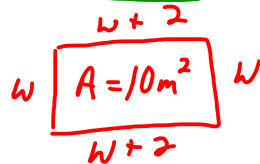
$$x = \frac{-8 \pm \sqrt{8^2 - 4(1)(-5)}}{2(1)} = \frac{-8 \pm \sqrt{64 + 20}}{2}$$

$$= \frac{-8 \pm \sqrt{84}}{2} = \frac{-8 \pm \sqrt{4} \sqrt{21}}{2}$$

$$= \frac{-8 \pm 2\sqrt{21}}{2} = 4 \pm \sqrt{21}$$

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

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.



Let $w = \text{width}$
Let $w+2 = \text{length}$

$$A = L \cdot W$$

$$10 = w(w+2)$$

$$10 = w^2 + 2w$$

$$0 = w^2 + 2w - 10$$

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

$$w = \frac{-2 \pm \sqrt{2^2 - 4(1)(-10)}}{2(1)}$$

$$w = \frac{-2 \pm \sqrt{4 + 40}}{2}$$

$$w = \frac{-2 \pm \sqrt{44}}{2}$$

$$\frac{-2 \pm \sqrt{44}}{2} \quad (-2 \pm \sqrt{44})$$

$$\frac{-2 \pm 2\sqrt{11}}{2} \quad \text{Enter}$$

$$\frac{-2 - \sqrt{44}}{2} \quad \text{Enter}$$

$$w^2 - 4$$

$$w^2 - 25$$

$$w^2 - 9$$

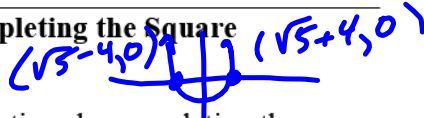
$$w^2 - 16$$

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Regents Review: Completing the Square

Algebra 1



$$\sqrt{5} + 4 = 6 \dots$$

$$\sqrt{5} - 4 = -2 \dots$$

Solve the following equations by completing the square.

(1) $x^2 - 8x + 11 = 0$

(2) $x^2 - 14x = 0$

$$(x^2 - 8x + 16) - 16 + 11 = 0$$

$$\left(\frac{-8}{2}\right)^2$$

$$(x-4)^2 - 4 = 0$$

$$1 + 2 = 3$$

$$+4$$

$$-4$$

$$\sqrt{(x-4)^2 \pm \sqrt{5}}$$

$$x - 4 = \pm \sqrt{5} + 4$$

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

(4) $0 = -x^2 - 16x - 7$

$$x = \pm \sqrt{5} + 4$$

$$0 = x^2 - 16x - 7$$

$$0 = -1(x^2 + 16x + 64 - 64) - 7$$

$$0 = -1(x^2 + 16x + 64) + 64 - 7$$

$$0 = -1(x + 8)^2 + 57$$

(5) $2 = -x^2 + 6x$

(6) $9 = 3x^2 - 30x$

(7) $16x = 4x^2 + 8$

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

(9) Which equation has the same solutions as $x^2 + 6x - 7 = 0$

(1) $(x + 3)^2 = 2$

(3) $(x - 3)^2 = 16$

(2) $(x - 3)^2 = 2$

(4) $(x + 3)^2 = 16$