ANSWER PRESENTATION TOOL

Algebra 2 - Student Edit 3 Practice Tes 1-15 ALL EVEN Show Solı

ODD

1. Use the square root method because the equation can be written in the form $u^2 = d$.

$$x^2 + 49 = 85$$
$$x^2 = 36$$
$$x = \pm 6$$

The solutions are $x = -6$ and $x = 6$.

2. Use the process of completing the square because $a = 1$ and b is an even number.

$$0 = x^2 + 2x + 3$$
$$-3 = x^2 + 2x$$
$$-3 + 1 = x^2 + 2x + 1$$
$$-2 = (x + 1)^2$$
$$\pm i\sqrt{2} = x + 1$$
$$-1 \pm i\sqrt{2} = x$$

The solutions are $x = -1 - i\sqrt{2}$ and $x = -1 + i\sqrt{2}$.

3. Use the process of completing the square because $a = 1$ and b is an even number.

$$6x = x^2 + 7$$
$$-7 = x^2 - 6x$$
$$-7 + 9 = x^2 - 6x + 9$$
$$2 = (x - 3)^2$$
$$\pm\sqrt{2} = x - 3$$
$$3 \pm \sqrt{2} = x$$

The solutions are $x = 3 - \sqrt{2}$ and $x = 3 + \sqrt{2}$.

4. Use the square root method because the equation can be written in the form $u^2 = d$.

$$(x + 4)(x - 1) = -x^2 + 3x + 4$$
$$x^2 + 3x - 4 = -x^2 + 3x + 4$$
$$2x^2 = 8$$
$$x^2 = 4$$
$$x = \pm 2$$

The solutions are $x = -2$ and $x = 2$.

5. The related quadratic equation will have one real solution because the graph has only one x-intercept. The discriminant is $3^2 - 4\left(\frac{1}{2}\right)\left(\frac{9}{2}\right) = 0$, which indicates one real solution.

6. The related quadratic equation will have two imaginary solutions because the graph has no x-intercept. The discriminant is $16^2 - 4(4)(18) = -32$, which indicates two imaginary solutions.

7. The related quadratic equation will have two real solutions because the graph has two x-intercepts. The discriminant is $\left(\frac{1}{2}\right)^2 - 4(-1)\left(\frac{3}{2}\right) = \frac{25}{4}$, which indicates two real solutions.

8. Begin by solving for y in Equation 2.

$y = 2x - 18$

Next, substitute $2x - 18$ for y in Equation 1 and solve for x.

$$x^2 + 66 = 16x - (2x - 18)$$

$$x^2 + 66 = 16x - 2x + 18$$

$$x^2 + 66 = 14x + 18$$

$x^2 - 14x + 48 = 0$

$(x - 6)(x - 8) = 0$

$$x = 6 \quad \text{or} \quad x = 8$$

To solve for y, substitute $x = 6$ and $x = 8$ into the equation $y = 2x - 18$.

$y = 2x - 18 = 2(6) - 18 = -6$

$y = 2x - 18 = 2(8) - 18 = -2$

The solutions are $(6, -6)$ and $(8, -2)$.

9. Substitute $x + 4$ for y in Equation 1 and solve for x.

$$0 = x^2 + (x + 4)^2 - 40$$
$$0 = x^2 + x^2 + 8x + 16 - 40$$
$$0 = 2x^2 + 8x - 24$$
$$0 = x^2 + 4x - 12$$
$$0 = (x + 6)(x - 2)$$
$$x + 6 = 0 \quad \text{or} \quad x - 2 = 0$$
$$x = -6 \quad \text{or} \quad x = 2$$

To solve for y, substitute $x = -6$ and $x = 2$ into the equation $y = x + 4$.

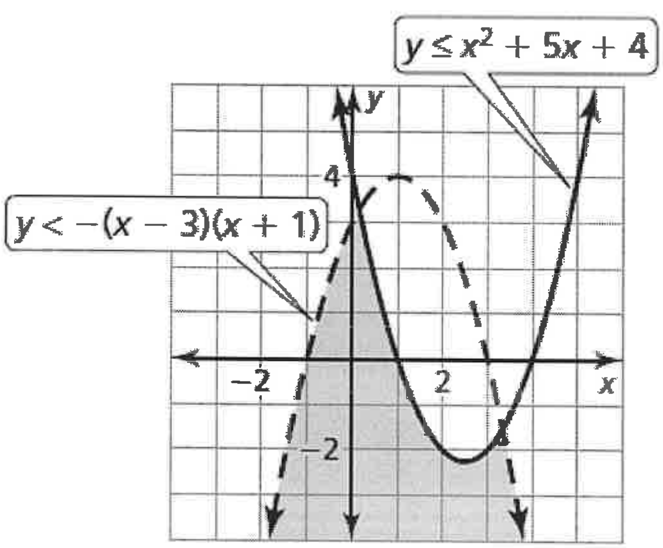
$$y = x + 4 = -6 + 4 = -2$$
$$y = x + 4 = 2 + 4 = 6$$

The solutions are $(-6, -2)$ and $(2, 6)$.

10. **Step 1** Graph $y \leq x^2 - 5x + 4$.

Step 2 Graph $y < -(x - 3)(x + 1)$.

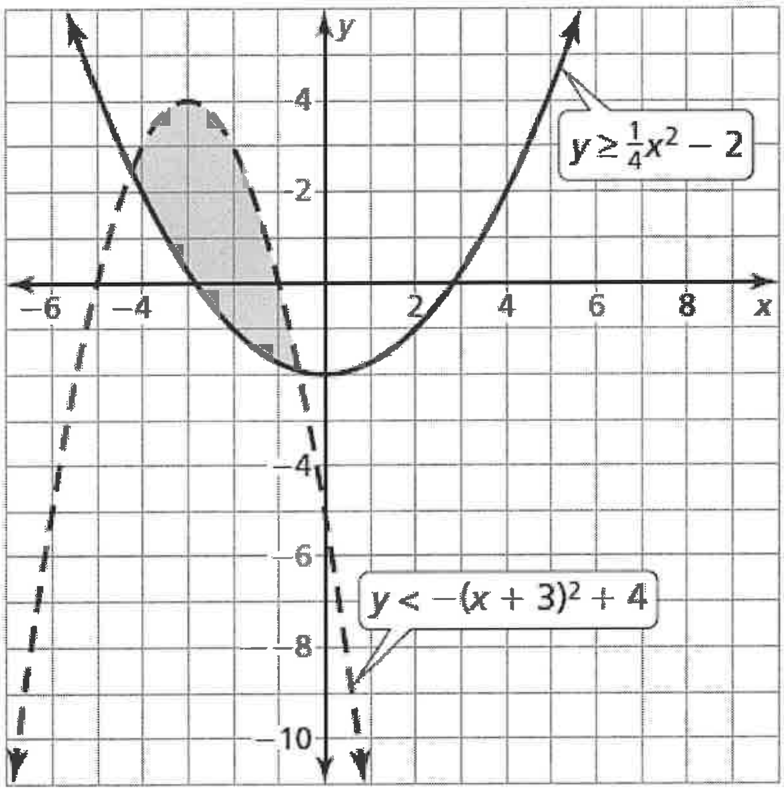
Step 3 Identify the region where the two graphs overlap. This region is the graph of the system.



11. Step 1 Graph $y \geq \frac{1}{4}x^2 - 2$.

Step 2 Graph $y < -(x + 3)^2 + 4$.

Step 3 Identify where the two graphs overlap. This region is the graph of the system.



12. $(3 + 4i)(4 - 6i) = 12 - 18i + 16i - 24i^2$

$= 12 - 2i - 24(-1)$

$= 36 - 2i$

13. To find the maximum height, find the vertex of the parabola. Find the x-coordinate first.

$$x = -\frac{b}{2a} = -\frac{0.3}{2(-0.01)} = 15$$

Next, find the y-coordinate of the vertex.

$$y = -0.01(15)^2 + 0.3(15) + 2 = 4.25$$

The vertex is (15, 4.25). So, the maximum height of the horseshoe is 4.25 feet. To find how far the horseshoe traveled, find the x-intercept of the graph.

$$-0.01x^2 + 0.3x + 2 = 0$$

$$x^2 - 30x - 200 = 0$$

$$x = \frac{-(-30) \pm \sqrt{(-30)^2 - 4(1)(-200)}}{2(1)}$$

$$x = \frac{30 \pm \sqrt{1700}}{2}$$

$$x \approx 35.6 \quad \text{or} \quad x \approx -5.6$$

Reject the negative solution, −5.6, because distance cannot be negative. So, the distance the horseshoe traveled is approximately 35.6 feet.

14. To find what distance the arch is more than 200 feet above the ground, use the quadratic inequality $200 \leq -0.0063x^2 + 4x$. First, rewrite using the related equation $200 = -0.0063x^2 + 4x$. Solve the equation.

$$200 = -0.0063x^2 + 4x$$

$$0 = -0.0063x^2 + 4x - 200$$

$$x = \frac{-4 \pm \sqrt{10.96}}{-0.0126}$$

So, the solutions are approximately 55 and 580. The arch is more than 200 feet above the ground from about 55 feet to about 580 feet.

15. Using the Pythagorean Theorem, the equation that models the situation is $(16x)^2 + (9x)^2 = 32^2$. Solve the equation for x.

$$(16x)^2 + (9x)^2 = 32^2$$

$$256x^2 + 81x^2 = 1024$$

$$337x^2 = 1024$$

$$x^2 = \frac{1024}{337}$$

$$x = \pm\sqrt{\frac{1024}{337}}$$

Reject the negative solution, -1.743, because length cannot be negative. So, $x \approx 1.743$. Then the dimensions of the TV are $16(1.743) \approx 27.9$ inches by $9(1.743) \approx 15.7$ inches.