Lesson 19 Practice Problems

1. Without calculating the solutions, determine whether each equation has real solutions or not.

   a. $-0.5x^2 + 3x = 0$

   b. $x^2 - 4x + 7 = 0$

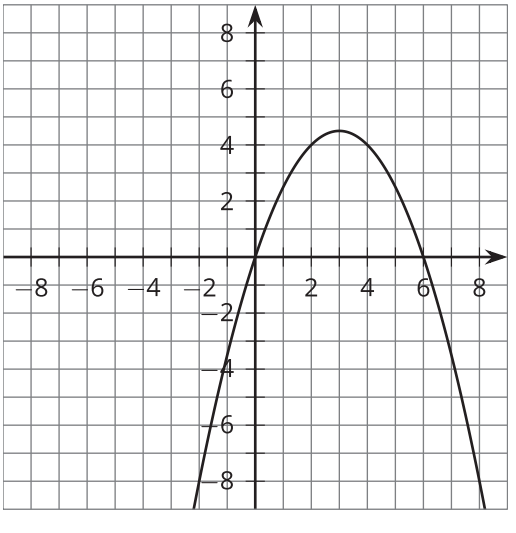
   c. $2x^2 - 2x - 1 = 0$

   d. $-0.5x^2 + 3x = 3$

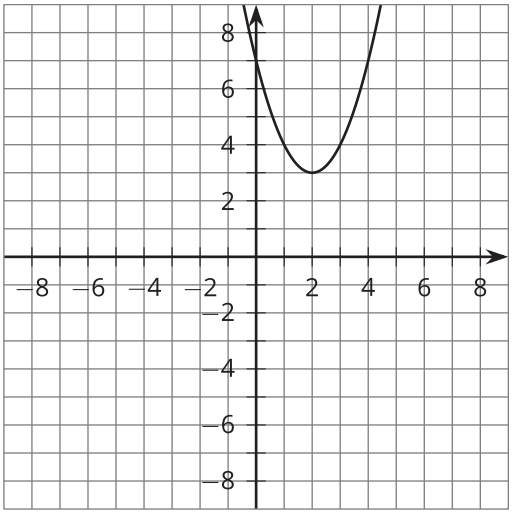
   e. $x^2 - 4x + 7 = 5$

   f. $2x^2 - 2x - 1 = -4$

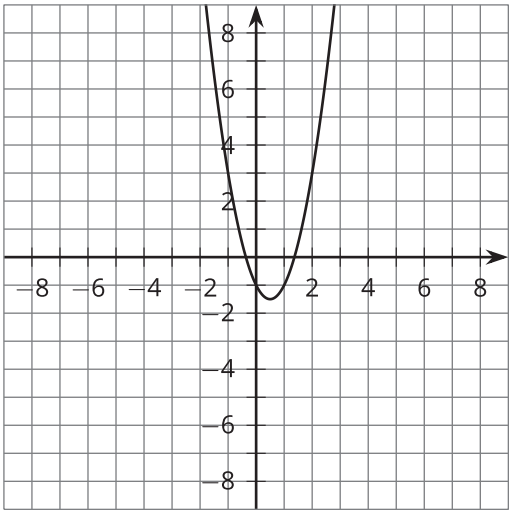
$y = -0.5x^2 + 3x$



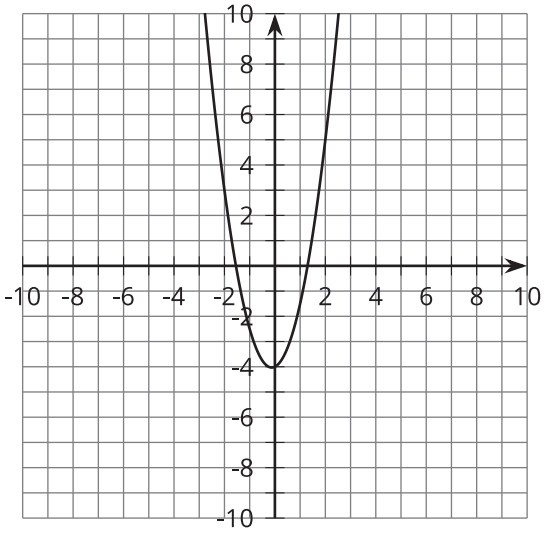
$y = x^2 - 4x + 7$



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



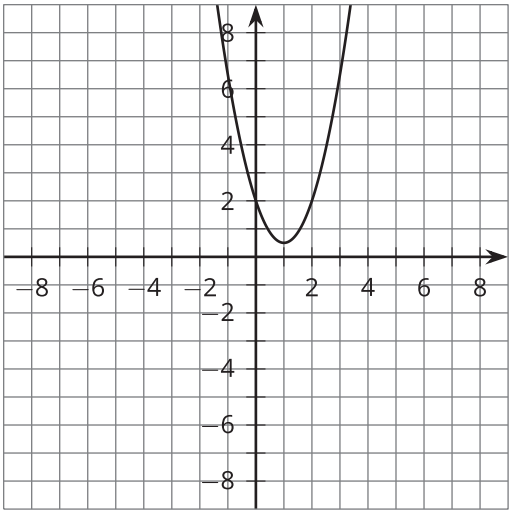
2. The graph shows the equation $y = 2x^2 + 0.5x - 4$.



Based on the graph, what number could you put in the box to create an equation that has no real solutions?

$$2x^2 + 0.5x - 4 = \square$$

3. The graph shows the equation $y = 1.5x^2 - 3x + 2$.



a. Without calculating the solutions, determine whether $1.5x^2 - 3x + 2 = 0$ has real solutions.

b. Show how to solve $1.5x^2 - 3x + 2 = 0$.

4. Write a quadratic equation that has two non-real solutions. How did you decide what equation to write?

5. Find the solution or solutions to each equation.

   a. $-2x^2 + 2x = 2.5$

   b. $4.5x^2 + 3x + \frac{1}{2} = 0$

   c. $\frac{1}{2}x^2 + 5x = -14$

   d. $-x^2 - 1.5x + 5 = 7$

6. Elena and Kiran were solving the equation $2x^2 - 4x + 3 = 0$ and they got different answers. Elena wrote $1 \pm i\sqrt{0.5}$, and Kiran wrote $1 \pm \frac{i\sqrt{8}}{4}$. Are their answers equivalent? Say how you know.