Name _____ Date _____

LESSON 9.6

Challenge Practice

For use with the lesson "Solve Quadratic Equations by the Quadratic Formula"

In Exercises 1–5, the solution to a quadratic equation is given. Write an equation in standard form that has the solution.

Example: $x = \frac{-2 \pm \sqrt{3}}{5}$

Solution: The solution to the quadratic equation $ax^2 + bx + c = 0$ is given by $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Letting $-b = -2$ gives $b = 2$, letting $2a = 5$ gives $a = \frac{5}{2}$, and letting $b^2 - 4ac = 3$ gives $c = \frac{b^2 - 3}{4a}$. Substituting the values for a and b you get $c = \frac{1}{10}$. So the equation $\frac{5}{2}x^2 + 2x + \frac{1}{10} = 0$ has the desired solutions.

1. $x = \frac{-4 \pm \sqrt{10}}{3}$
2. $x = \frac{-6 \pm \sqrt{-5}}{7}$
3. $x = \frac{1 \pm \sqrt{0}}{3}$
4. $x = \frac{-17 \pm \sqrt{21}}{15}$
5. $x = \frac{11 \pm \sqrt{11}}{11}$

In Exercises 6–8, use the following information.

If the graph of a parabola has x-intercepts, then the axis of symmetry of the parabola can be found at the position that is the average of the two x-intercepts. Use this concept to find the axis of symmetry for the parabola modeled by the equation.

6. $y = 3x^2 + 5x + 2$
7. $y = 2x^2 - 4x + 1$
8. $y = 6x^2 + x - 1$