Student Practice – Writing Quadratic Equations from Solutions and Graphs

Name _____ Date _____ Period _____

Given the roots, write the corresponding quadratic equation.

1. $x+3=0$ or $x-7=0$

2. $x:\left\{-\frac{2}{5},4\right\}$

3. $x=4$

4. $x=\pm\frac{3}{4}$

5. $x:\{-.5,6\}$

6. $x=\frac{2}{3}$ or $x=\frac{3}{2}$

7. $x:\{\pm 3\}$

8. The roots of a quadratic equation are 3 and 5. The equation is:

   A. $x^2+8x+15=0$
   B. $x^2+8x-15=0$
   C. $x^2-8x+15=0$
   D. $x^2-8x-15=0$

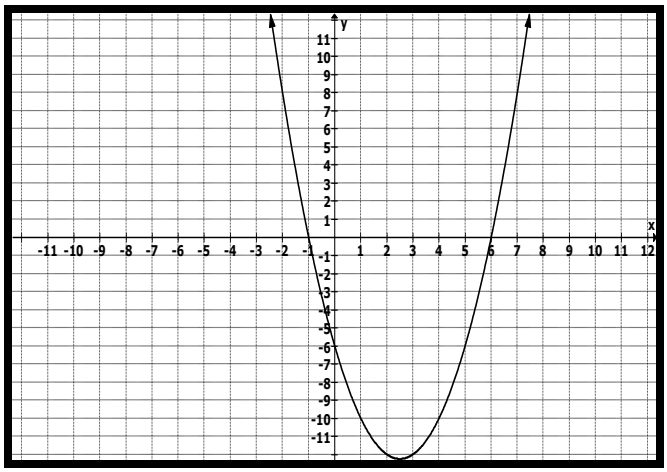
9. Miranda was given the factors $x = \frac{2}{5}$ and $x = -\frac{1}{3}$ and asked to write the quadratic equation to correspond to those factors. Her work is shown below. Determine which step, if any, contains a mistake.

Step 1: $5x - 2 = 0$ or $3x + 1 = 0$
Step 2: $(5x - 2)(3x + 1) = 0$
Step 3: $8x^2 - 6x + 5x - 2 = 0$
Step 4: $8x^2 - x - 2 = 0$

A. Step 2
B. Step 3
C. Step 4
D. There is no mistake

10. What would be the correct equation for question 9?
A. The equation was correct
B. $8x^2 + x - 2 = 0$
C. $15x^2 - x - 2 = 0$
D. $15x^2 + x - 2 = 0$

11. Write quadratic functions for the graph below in standard form.



12. Explain the relationship among the terms solutions, zero and linear factors as they relate to quadratic equations, functions, and expressions.