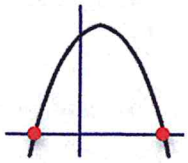
Algebra 1: 11.4 Quiz **Name** _____ **Period** _____
Factored Form of a Quadratic Function
SHOW ALL WORK!

1. **Circle the <u>factored</u> form a quadratic function:**

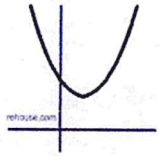
   $y = ax^2 + bx + c$ or $y = a(x - h)^2 + k$ or $y = a(x - r_1)(x - r_2)$

2. **The point(s) where the parabola crosses the *x*-axis are called the *x*-intercepts or** roots or zeros.

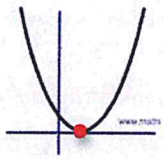
3. **How many solutions does each parabola have?**



2 solutions



no solution



1 solution

4. **Find the *x*-intercepts or zeros for each quadratic function written in factored form.**

   a. $f(x) = (x - 4)(x + 7)$ (4 , 0) and (-7 , 0)

   b. $f(x) = x(3x + 6)$ (0 , 0) and (-2 , 0)

5. **Write a quadratic equation in <u>factored</u> form for a parabola that opens <u>up</u> and has *x*-intercepts at (9, 0) and (–5, 0).**

   $f(x) =$ $(x-9)(x+5)$

6. **Determine the axis of symmetry of a parabola if the *x*-intercepts are (5, 0) and (11, 0).**

   $x =$ 8

   $\frac{5+11}{2} = \frac{16}{2} = 8$

7. **Circle the correct vertex for a parabola given the quadratic function: f(x) = (x + 6)(x – 2) and the *x*-intercepts (–6, 0) and (2, 0).**

   a. (–2, –9) b. (2, 12) c. (–2, –16) d. (2, –10)

   $x = \frac{-6+2}{2} = \frac{-4}{2} = -2$

   $f(-2) = (-2+6)(-2-2)$

   $= 4(-4) = -16$

8. **Find the *x*-intercepts and the vertex. Then, graph the quadratic function.**

   $f(x) = (x + 2)(x - 2)$

   ***x*-intercepts:** (-2 , 0) and (2 , 0)

   Vertex: (0 , -4)

   $x = \frac{-2+2}{2} = \frac{0}{2} = 0$

   $f(0) = (0+2)(0-2) = 2(-2) = -4$