**Solving Quadratic Equations by Factoring**

1. Let’s solve the equation by factoring. To do this, fill in the blanks for each step below.

**Step 1:** Find all factor pairs for 12: , ,

**Step 2:** Factor the left side of the equation: (*x – \_\_\_*)(*x \_\_\_* 3) = 0

**Step 3:** Using the Zero Product Property, either *x* – 4 = 0 or \_\_\_\_\_\_\_ = 0

**Step 4:** If *x –* 4 = 0 then If  *\_\_\_\_\_\_\_ =* 0 then

*x = \_\_\_\_\_ x = \_\_\_\_\_*

1. Now that you have experienced this process, solve each of the equations below by factoring the left side and using the Zero Product Property.
2. Describe any patterns you observe in solving equations 2(a) through 2(d).
3. Check 2(a) through 2(d) by graphing functions on a calculator.
4. Could you solve by factoring? Why or why not?
5. Solve each of these equations by factoring the left side and using the Zero Product Property.
6. Find another quadratic equation of the form or that you can solve by factoring and solve it.
7. Find a quadratic equation of the form or that you cannot solve by factoring and explain why you can’t solve it.
8. Solve each of these equations by factoring.
9. Find another quadratic equation with the same leading coefficient (that is, *a* = 2) that can be solved by factoring, and solve it.
10. Solve each of these equations by factoring.
11. (Hint: first find a common factor for all three terms)
12. How is the solution for (d) different from the other solutions on this page?