3.02 Solving Quadratic Equations by Factoring Additional Practice Key

**Solve the problems below. Then, compare your answers and work to the 3.02 Solving Quadratic Equations by Factoring Additional Practice Key.**

# ****Practice Problems****

1. **Solve the quadratic equation 9 − 81 = 0**

The solutions are *n* = −3 and *n* = 3.

When you factor, use the difference of two squares method:  
(3*n* + 9)(3*n* −9) = 0

Then, solve the quadratic equation:

3*n* + 9 = 0

3*n* = −9

*n* = −3

3*n* − 9 = 0

3*n* = 9

*n* = 3

Therefore, your two solutions are n = −3 and n = 3.

1. **Solve the quadratic equation 3 + 14*x* − 49 = 0**

**The solutions are *x* = −7 and *x* = .**

Multiply (*a*)(*c*), which gives you (3)(49) = **−**147.   
 Then, find the factors of **−**147 which will sum to 14: **−**7 and 21

Then, factor (split the middle term into its two factors):  
3*x*2 + 21*x* **−**7*x* +49 = 0  
Factor the GCF from the first two terms and the last two terms 3x(*x* + 7) **−**7 (*x* + 7) = 0

Factor the GCF from both terms

(*x* + 7)(3x **−** 7) = 0  
When you solve, you will have:

*x* + 7 = 0

*x* = −7

3*x* **−** 7 = 0

3*x* = 7

*x* =

1. **Solve 3 - 19x = 14**

**We can see this is not in the form + *bx* + *c*.**

**Step 1: Set this equal to zero.**

3 − 19*x* − 14 = 0

**Step 2**: Factor!

(3*x* + 2)(*x* − 7) = 0

**Step 3**: The product of two factors is zero if one or both factors equals zero. Set each factor equal to zero and solve for those numbers.

3*x* + 2 =0

3*x* = −2

*x* =

*x* – 7 = 0

*x* = 7