## Study Guide and Intervention (continued)

Factoring Trinomials:  $ax^2 + bx + c$ 

Solve Equations by Factoring Factoring and the Zero Product Property can be used to solve some equations of the form  $ax^2 + bx + c = 0$ .

## Example

Solve  $12x^2 + 3x = 2 - 2x$ . Check your solutions.

$$12x^2 + 3x = 2 - 2x$$

 $12x^2 + 5x - 2 = 0$ 

$$12x^2 + 5x - 2 = 0$$
$$(3x + 2)(4x - 1) = 0$$

3x + 2 = 0 or 4x - 1 = 0 Zero Product Property

$$x=-\frac{2}{3}$$

Original equation

Rewrite equation so that one side equals 0.

Factor the left side.

 $x = \frac{1}{4}$  Solve each equation.

EXAMPLE OF FACTORING CONTINUED BELOW

The solution set is  $\left\{-\frac{2}{3}, \frac{1}{4}\right\}$ .

Since  $12\left(-\frac{2}{3}\right)^2 + 3\left(-\frac{2}{3}\right) = 2 - 2\left(-\frac{2}{3}\right)$  and  $12\left(\frac{1}{4}\right)^2 + 3\left(\frac{1}{4}\right) = 2 - 2\left(\frac{1}{4}\right)$ , the solutions check.

Exercises

TIP! Put in proper form before trying to factor! Follow GRE. -- Mr. C.

Solve each equation.

$$1.8x^2 + 2x - 3 = 0$$

$$2. 3n^2 - 2n - 5 = 0$$

$$3. 2d^2 - 13d - 7 = 0$$

$$4.4x^2 = x + 3$$

$$5. 3x^2 - 13x = 10$$

$$6.6x^2 - 11x - 10 = 0$$

$$7. \ 2k^2 - 40 = -11k$$

8. 
$$2p^2 = -21p - 40$$

$$9. -7 - 18x + 9x^2 = 0$$

10. 
$$12x^2 - 15 = -8x$$

11. 
$$7a^2 = -65a - 18$$

12. 
$$16y^2 - 2y - 3 = 0$$

13. 
$$8x^2 + 5x = 3 + 7x$$

--- Look

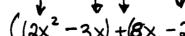
14. 
$$4a^2 - 18a + 5 = 15$$

**15.** 
$$3b^2 - 18b = 10b - 49$$



LEFACTORING EXAMPLE CONTINGED HERE 12x2+5x-2\_

> Sum = 5 Prop = 12 - 2 = -24



$$3x(4x-1)+a(4x-1)$$

\*(4x-1)(3x+2)

Note: the order in which you multiply these groups does not matter.