

Factoring Trinomials I

Factoring trinomials is a skill that is often used to solve equations. It is easy to factor trinomials if you can determine factors of numbers and find sums or differences. To check that the factors you use are correct, simply multiply the binomials.

For example, $x^2 - 2x - 15$ can be factored as $(x - 5)(x + 3)$, because the factors of -15 whose sum equal -2 are -5 and 3 .

Here is another example. $x^2 - 7x + 12$ can be factored as $(x - 4)(x - 3)$, because the factors of 12 whose sum equal -7 are -3 and -4 .

Directions: Factor each trinomial and write your answer in the space provided. You will likely be correct if each factor is used twice. Check your answers.

1. $x^2 + 5x + 6 =$ _____
2. $x^2 - 6x - 7 =$ _____
3. $x^2 - 12x + 32 =$ _____
4. $x^2 - 4x + 4 =$ _____
5. $x^2 - 9x + 8 =$ _____
6. $x^2 + x - 20 =$ _____
7. $x^2 - x - 30 =$ _____
8. $x^2 - 16x + 60 =$ _____
9. $x^2 - 3x - 28 =$ _____
10. $x^2 - 2x - 15 =$ _____
11. $x^2 + 3x + 2 =$ _____
12. $x^2 - 15x + 36 =$ _____
13. $x^2 - 6x + 5 =$ _____
14. $x^2 - 12x + 27 =$ _____
15. $x^2 - 6x - 40 =$ _____
16. $x^2 - 21x + 108 =$ _____

Factoring Binomials and Trinomials

Use the following steps when factoring binomials and trinomials:

1. Find the greatest common factor or the greatest monomial factor (if there is one).
2. Write the expression as the product of the factor and a polynomial.
3. Factor the polynomial, if possible.
4. Always check by multiplying.

Directions: Factor each polynomial and write the factors in the space after the polynomial. Find each pair of factors in the Answer Bank on the next page, and write the letters of the factors in the spaces provided before the problem. When you have finished, write the letters, starting with the first problem, in the spaces at the end of the activity to complete a message. Hint: It may be necessary to switch the order of the two letters in each problem to complete the message.

1. _____ $x^2 - x - 6 =$ _____
2. _____ $x^2 - 9x + 20 =$ _____
3. _____ $x^2 + 9x + 14 =$ _____
4. _____ $x^2 - 9x + 8 =$ _____
- * 5. _____ $3x^2 + 16x + 16 =$ _____
6. _____ $x^2 - 13x + 40 =$ _____
7. _____ $x^2 - 6x + 8 =$ _____
8. _____ $x^2 + 2x - 3 =$ _____
9. _____ $x^2 - x - 2 =$ _____
10. _____ $x^2 + 8x + 16 =$ _____
11. _____ $2x^3 - 16x^2 =$ _____
12. _____ $4x + 28 =$ _____
13. _____ $2x^2 - x - 6 =$ _____
14. _____ $2x^3 + 2x^2 =$ _____
15. _____ $x^2 - 11x + 24 =$ _____
16. _____ $6x^2 + 42x =$ _____

Factoring Binomials and Trinomials**Answer Bank**

N. $(x + 4)$

O. $(x - 8)$

E. $(x + 7)$

C. $(x + 1)$

P. $(x + 2)$

S. $(x + 3)$

I. $(x - 4)$

M. $(x - 5)$

L. $(x - 1)$

B. 4

R. $(x - 3)$

F. $(2x + 3)$

T. $2x^2$

D. $6x$

Y. $(3x + 4)$

A. $(x - 2)$

