

# Factoring Trinomials $x^2 + Bx + C$

Friday, September 27, 2019 11:33 AM

Simplify:

①  $(x+3)(x+4)$

$$x^2 + 4x + 3x + 12$$

$$x^2 + 7x + 12$$

②  $(x-2)(x-5)$

$$x^2 - 5x - 2x + 10$$

$$x^2 - 7x + 10$$

③  $(x+5)(x-3)$

$$x^2 - 3x + 5x - 15$$

$$x^2 + 2x - 15$$

Factor: Factors of 12: 1, 2, 3, 4, 6, 12

Factor 12  
 $\wedge$   
 $3 \times 4$

$3 \times 2 \times 2 \rightarrow$  prime factorization

$$\begin{array}{r} -3 + 8 \\ + 5 \end{array}$$

Eg Factor  $x^2 + \underbrace{11x}_{\text{sum}} + \underbrace{28}_{\text{product}} = (x+7)(x+4)$

$$x^2 - 11x + 30 = (x-5)(x-6)$$

sign goes to the larger  $\downarrow$   
 $x^2 - 5x - 24 = (x+3)(x-8)$   
 sum  $\rightarrow$

$$x^2 + 2xy - 15y^2 = (x+5y)(x-3y)$$

$$\frac{2x^3}{2x} - \frac{18x^2}{2x} + \frac{40x}{2x}$$

$$2x(x^2 - 9x + 20)$$

$$2x(x-4)(x-5)$$

\* Always take GCF out first!

GCF = greatest

common factor

Try Factor

$$\textcircled{1} x^2 - 2xy - 24y^2$$
$$(x + 4y)(x - 6y)$$

$$\textcircled{2} 3x^4 - 9x^3 - 54x^2$$
$$3x^2(x^2 - 3x - 18)$$
$$3x^2(x + 3)(x - 6)$$

Eg  $(x+2)^2 + 7(x+2) + 12$ . Let  $n = \underline{x+2}$

$$n^2 + 7n + 12$$
$$(\underline{n+3})(\underline{n+4})$$
$$(\underline{x+2+3})(\underline{x+2+4})$$
$$(\underline{x+5})(\underline{x+6})$$

$n = 2x + 3$

Try  $(2x+3)^2 - 8(2x+3) + 15$

$$n^2 - 8n + 15$$
$$(n-3)(n-5)$$
$$(\underline{2x+3-3})(\underline{2x+3-5})$$
$$\underline{2x}(\underline{2x-2})$$
$$\underline{2x} \cdot \underline{2}(\underline{x-1})$$
$$\underline{4x}(x-1)$$

Pg 194 # 4, worksheet

$$\textcircled{11} n^2 + n - \textcircled{6}$$
$$(n+3)(n-2)$$

$$11a) (a+b)^2 + 7(a+b) + 12$$

$$n = (a+b)$$

$$n^2 + 7n + 12$$

$$(n+3)(n+4)$$

$$(a+b+3)(a+b+4)$$

$$11f.) (3x+5y)^2 - 3(3x+5y) - 18$$

$$n = (3x+5y)$$

$$n^2 - 3n - 18$$

$$(n+3)(n-6)$$

$$(3x+5y+3)(3x+5y-6)$$