

Grouping method of factoring - 4 terms only

$$\begin{aligned} & (a^3 - 4a^2 + 3a - 12) \\ & a^2(a-4) + 3(a-4) \\ & (a-4)(a^2 + 3) \end{aligned}$$

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$$\begin{aligned} & (x^4 - 3x^3 + 2xy - 6y) \\ & x^3(x-3) + 2y(x-3) \\ & (x-3)(x^3 + 2y) \end{aligned}$$

Factor by grouping

$$\begin{aligned} & (10a^3 - 6a)(20a^2 - 12) \\ & 2a(5a^2 - 3) + 4(5a^2 - 3) \\ & (5a^2 - 3)(2a + 4) \end{aligned}$$

$$\begin{aligned} & (12x^3 - 3x^2 + 8x - 2) \\ & 3x^2(4x - 1) + 2(4x - 1) \\ & (4x - 1)(3x^2 + 2) \end{aligned}$$

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Factoring Trinomials when a=1

$$ax^2 + bx + c$$

$$x^2 + 5x - 6$$

$$\begin{aligned} & (x^2 - 1x) + (6x - 6) \\ & x(x-1) + 6(x-1) \\ & (x-1)(x+6) \end{aligned}$$

$$\begin{array}{c} -6 \\ \wedge \\ -1 + 6 = 5 \end{array}$$

$$\begin{array}{l} -1 + 6 \\ -2 - 3 \\ 2 \quad 3 \end{array}$$

$$x^2 - 2x - 24$$

$$\begin{aligned} & (x^2 - 6x) + (4x - 24) \\ & x(x-6) + 4(x-6) \\ & (x-6)(x+4) \end{aligned}$$

$$\begin{array}{c} -24 \\ \wedge \\ + = -2 \end{array}$$

$$\begin{array}{l} 1 \quad 24 \\ 2 \quad 12 \\ 3 \quad 8 \\ 4 \quad 6 \end{array}$$

$$x^2 + 8x + 15$$

$$\begin{aligned} & (x^2 + 3x) + (5x + 15) \\ & x(x+3) + 5(x+3) \\ & (x+3)(x+5) \end{aligned}$$

$$\begin{array}{c} 15 \\ \wedge \\ + = 8 \end{array}$$

$$\begin{array}{l} 1 \quad 15 \\ 5 \quad 3 \end{array}$$

Factor completely

$$x^2 - 3x - 28$$

$$x^2 - 7x + 4x - 28$$

$$\begin{aligned} & (x^2 + 4x)(-7x - 28) \\ & x(x+4) - 7(x+4) \\ & (x+4)(x-7) \end{aligned}$$

$$\begin{array}{c} -28 \\ \wedge \\ -7 + 4 = -3 \end{array}$$

$$x^2 + 4x - 12$$

Answers are in file 'Factoring 1'

Factoring Trinomials (a = 1)

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Factor each completely.

1) $b^2 + 8b + 7$

2) $n^2 - 11n + 10$

3) $m^2 + m - 90$

4) $n^2 + 4n - 12$

5) $n^2 - 10n + 9$

6) $b^2 + 16b + 64$

7) $m^2 + 2m - 24$

8) $x^2 - 4x + 24$

9) $k^2 - 13k + 40$

10) $a^2 + 11a + 18$

11) $n^2 - n - 56$

12) $n^2 - 5n + 6$

13) $b^2 - 6b + 8$

14) $n^2 + 6n + 8$