



Questions?
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Factor $x^2 + 4x - 32$

Question

Answer

$$x^2 + 4x - 32$$

$$x^2 + bx + c$$

$$b = 4 > 0; c = -32 < 0$$

Factors of 32 $b_1 > b_2$	Positive Difference $b_1 - b_2 = b$
32, 1	$32 - 1 = 31$ ✗
16, 2	$16 - 2 = 18$ ✗
8, 4	$8 - 4 = 4$ ✓

$$x^2 + 4x - 32$$

$$x^2 + 8x - 4x - 32$$

$$x(x + 8) - 4(x + 8)$$

$$(x + 8)(x - 4)$$

10. Factorization

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Factor $x^2 - 3x - 18$

Question

Answer

$$x^2 - 3x - 18$$

$$x^2 + bx + c$$

$$b = -3 < 0; c = -18 < 0$$

Factors of 18 $b_1 > b_2$	Negative Difference $b_2 - b_1 = b$
18, 1	$1 - 18 = -17$ ✗
9, 2	$2 - 9 = -7$ ✗
6, 3	$3 - 6 = -3$ ✓

$$x^2 - 3x - 18$$

$$x^2 + 3x - 6x - 18$$

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

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

10. Factorization

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Factor $x^2 + 10x + 21$

Question

Answer

$$x^2 + 10x + 21$$

$$x^2 + bx + c$$

$$b = 10 > 0; c = 21 > 0$$

Factors of 21 $b_1 > b_2$	Positive Sum $b_1 + b_2 = b$
21, 1	$21 + 1 = 22$ ✗
7, 3	$7 + 3 = 10$ ✓

$$x^2 + 10x + 21$$

$$x^2 + 7x + 3x + 21$$

$$x(x + 7) + 3(x + 7)$$

$$(x + 7)(x + 3)$$

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Factor $x^2 - 36$

Question

Answer

$$x^2 - 36$$

$$x^2 + 0 \cdot x - 36$$

$$x^2 + bx + c$$

$$b = 0 ; c = -36 < 0$$

Factors of 36 $b_1 > b_2$	Difference $b_1 - b_2 = b$
36, 1	$36 - 1 = 35$ ✗
18, 2	$18 - 2 = 16$ ✗
9, 4	$9 - 4 = 5$ ✗
6, 6	$6 - 6 = 0$ ✓

$$x^2 + 0 \cdot x - 36$$

$$x^2 + 6x - 6x - 36$$

$$x(x + 6) - 6(x + 6)$$

$$(x + 6)(x - 6)$$

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Factor $x^2 - 3x - 10$

Question

Answer

$$x^2 - 3x - 10$$

$$x^2 + bx + c$$

$$b = -3 < 0; c = -10 < 0$$

Factors of 10 $b_1 > b_2$	Negative Difference $b_2 - b_1 = b$
10, 1	$1 - 10 = -9$ ✗
5, 2	$2 - 5 = -3$ ✓

$$x^2 - 3x - 10$$

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

$$x(x + 2) - 5(x + 2)$$

$$(x + 2)(x - 5)$$

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Factor $x^2 + 8x + 12$

Question

Answer

$$x^2 + 8x + 12$$

$$x^2 + bx + c$$

$$b = 8 > 0; c = 12 > 0$$

Factors of 12 $b_1 > b_2$	Positive Sum $b_1 + b_2 = b$
12, 1	$12 + 1 = 13$ ✗
6, 2	$6 + 2 = 8$ ✓
4, 3	$4 + 3 = 7$ ✗

$$x^2 + 8x + 12$$

$$x^2 + 6x + 2x + 12$$

$$x(x + 6) + 2(x + 6)$$

$$(x + 6)(x + 2)$$

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