

Factoring for  $ax^2 + bx + c$

**Steps:**

**1) GCF**

Take out the greatest common factor of all terms, if any, put it outside the parenthesis and divide by it.

**2) Big X**

- a) Label "a", "b" and "c"
- b) Top: "a" times "c"
- c) Bottom: b
- d) Sides: factors of top (ac) that add up or subtract to bottom (b)

**3) Parentheses**

- a) Set up your two parentheses with "ax" inside each of them.
- b) Place one of the side numbers in each parenthesis.
- c) Simplify as if you were simplifying a fraction (divide each parenthesis by the GCF, but do not keep the GCF).
- d) If you took out a GCF in step 1, attach it to your two final parentheses, to their left.

1)  $9k^2 + 66k + 21$

Step 1:

Step 2:

Step 3:

2)  $15n^2 - 27n - 6$

Step 1:

Step 2:

Step 3:

3)  $16b^2 + 60b - 100$

Step 1:

Step 2:

Step 3:

4)  $-6a^2 - 25a - 25$

Step 1:

Step 2:

Step 3:

$$5) 3p^2 - 2p - 5$$

Step 1:

Step 2:

Step 3:

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$$6) 2n^2 + 3n - 9$$

Step 1:

Step 2:

Step 3:

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

Step 1:

Step 2:

Step 3:

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$$8) n^2 - 11n + 10$$

Step 1:

Step 2:

Step 3:

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$$9) 2k^2 + 22k + 60$$

Step 1:

Step 2:

Step 3:

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$$10) x^2 - 4x + 24$$

Step 1:

Step 2:

Step 3:

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