



Factoring Trinomials ($ax^2 + bx + c$)
by Decomposition: Why Multiply a by c ?
(Video Notes)

[Video Link](#)

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Let's generalize this:

$$(dx' + e)(fx' + g)$$

$$dfx^2 + dgx + efx + eg$$

$$ax^2 + bx + c$$

$$a = df \quad b = dg + ef \quad c = eg$$

$$a \cdot c = df \cdot eg \rightarrow dfeg$$

since $b = dg + ef$, then dg and ef are factors of ac . $\therefore a \cdot c = dg \cdot ef = dfeg$

What to do?

1. Multiply a by c .
2. Determine factors of the product ac that have a sum of b .
3. Break bx up into the two factors you found.
4. Factor by grouping.