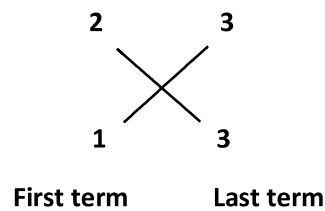


2. New strategy for practicing factorization

Example 2.1. We use 299 cf $(2x+3)(x+3)$ to indicate how to factorize $2x^2 + 9x + 9$; And use the diagram to illustrate how to carry out the factorization:

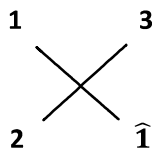


The diagram means: the first term= $2 \times 1 = 2$, the cross term= $2 \times 3 + 1 \times 3 = 9$, and the last term= $3 \times 3 = 9$.

So, we factorize: $2x^2 + 9x + 9 = (2x + 3)(x + 3)$. We can use $299 = 23 \times 13$ to simulate the computation.

Example 2.2: $25\hat{3}$ (= 247) cf $(x+3)(2x-1)$;

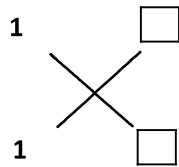
Meaning: The first term= $1 \times 2 = 2$, the cross term= $1 \times (-1) + 3 \times 2 = 5$, the last term= $3 \times (-1) = -3 = \hat{3}$.



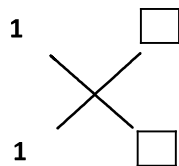
So, we factorize $2x^2 + 5x - 3 = (x + 3)(2x - 1)$. We can use $25\hat{3} = 13 \times 2\hat{1}$ to simulate the computation.

Here are some exercises.

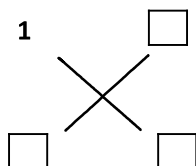
Exercise 9.3. Factorize: $x^2 + 3x + 2 = (x + \square)(x + \square)$ or factorize: $132 = 1\square \times 1\square$.



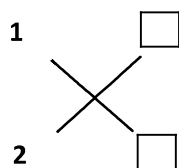
Exercise 9.4. Factorize: $x^2 + 7x + 6 = (x + \square)(x + \square)$ or factorize: $176 = 1\square \times 1\square$.



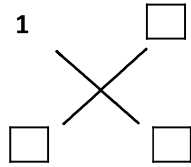
Exercise 9.5. Factorize: $x^2 + 5x + 6 = (x + \square)(x + \square)$ or factorize: $156 = 1\square \times \square\square$.



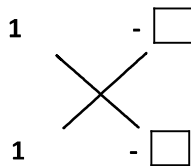
Exercise 9.6. Factorize: $2x^2 + 3x + 1 = (x + \square)(2x + \square)$ or factorize: $231 = 1\square \times 2\square$.



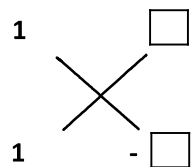
Exercise 9.7. Factorize: $2x^2 + 7x + 3 = (x + \square)(\square x + \square)$ **or factorize:** $273 = 1\square \times \square\square$.



Exercise 9.8. Factorize: $x^2 - 6x + 8 = (x - \square)(x - \square)$ **or factorize:** $168 = 1\square \times 1\square$.



Exercise 9.9. Factorize: $x^2 - 7x - 8 = (x + \square)(x - \square)$ **or factorize:** $178 = 1\square \times 1\square$.



Exercise 9.10. Factorize: $2x^2 - 7x - 4 = (x + \square)(x - \square)$ **or factorize:** $274 = 2\square \times \square\square$.

