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|  |  | ***FACTORING A QUADRATIC TRINOMIAL BY GROUPING***  **Example:**   |  |  | | --- | --- | | Given: | 5*x*2 + 11*x* + 2 | | Find the product *ac*: | (5)(2) = 10 | | Think of two factors of 10 that add up to 11: | 1 and 10 | | Write the 11*x* as the sum of 1*x* and 10*x*: | 5*x*2 + 1*x* + 10*x* + 2 | | Group the two pairs of terms: | (5*x*2 + 1*x*) + (10*x* + 2) | | Remove common factors from each group: | *x*(5*x* + 1) + 2(5*x* + 1) | | Notice that the two quantities in parentheses are now identical. That means we can factor out a common factor of (5*x* + 1): | (5*x* + 1)(*x* + 2) |     **Example:**   |  |  | | --- | --- | | Given: | 4*x*2 + 7*x* – 15 | | Find the product *ac*: | (4)(15) = 60 | | Think of two factors of 60 that add up to 7: | 5 and 12 | | Write the 7*x* as the sum of 5*x* and 12*x*: | 4*x*2 – 5*x* + 12*x* – 15 | | Group the two pairs of terms: | (4*x*2 – 5*x*) + (12*x* – 15) | | Remove common factors from each group: | *x*(4*x* – 5) + 3(4*x* – 5) | | Notice that the two quantities in parentheses are now identical. That means we can factor out a common factor of (4*x*  5): | (4*x* – 5)(*x* + 3) | |

