

Which is better?

Alex and Morgan were asked to factor $4x^2 + 18x + 14$

Alex's "factor by splitting the middle term first" way

Morgan's "factor out a common factor first" way

First I needed to find two numbers whose product equaled 56 (4×14) and whose sum equaled 18.

I made a table of possible factor pairs for 56, and checked to see which pair added up to 18.

4 plus 14 equals 18, so that's my pair.

I rewrote the original equation with $(14x + 4)$ as my new middle term.

I then

I factored the first parentheses 2 from the parentheses.

I simplified the expression.

I factored out a 2 from the first parentheses. Here is my answer.



$$ax^2 + bx + c$$

$$4x^2 + 18x + 14$$

$$4x + 18x + 14$$

$$2(2x^2 + 9x + 7)$$

When factoring a polynomial, factoring out a common factor first will result in a simpler expression that is often easier to factor.

First I factored out a 2 from the expression.

I made a table of possible factor pairs for 14 (2×7), and checked to see which pair added up to 9 (the new middle term).

2 plus 7 equals 9, so that's my pair.

I then rewrote the original equation with $(7x + 2x)$ as my new middle term.

I then

I simplified the expression. Here is my answer.



Before you start factoring, you can look at the problem first and try to see which way will be easier.



- * How did Alex factor the expression? How did Morgan factor the expression?
- * What are some similarities and differences between Alex's and Morgan's ways?
- * On a timed test, would you rather do Alex's way or Morgan's way? Why?