

Slide and Divide Method for Factoring Polynomials

The "slide and divide" method is another way to factor second degree polynomials of the form $ax^2 + bx + c$, when the a value is not 1.

This method will be illustrated by using an example. Factor $3x^2 + x - 10$.

1) "Slide" the a value 3 to the end by multiplying it by c is -10 . We get: $x^2 + x - 10$. $a \bullet c = -10$

2) Factor according to $a = 1$ (use shortcut, the factors of b will sum to be c).

We get: $(x-5)(x+6)$

3) Now divide by a :

$$\left(x + \frac{6}{3}\right)\left(x - \frac{5}{3}\right)$$

4) Reduce.

$$(x+2)\left(x - \frac{5}{3}\right)$$

5) If we still have a fraction in either of the binomials, move the denominator from the bottom of the fraction to the coefficient of the variable:

$$(x+2)(3x-5)$$

6) Check by multiplying back to see if it matches our original polynomial:

$$(x+2)(3x-5) = 3x^2 + x - 10$$

We have our original polynomial, so we have found the correct factors.