

## Factoring by Trial and Error

In order to factor a trinomial:

A trinomial has this form: $ax^2 + bx + c$	$6x^2 - 19x + 10$																		
-Factor out any common factors out of the terms.	There are no common terms in this example.																		
-Check the signs of the <b>a</b> term and the <b>c</b> term	The <b>a</b> term is positive. The <b>c</b> term is positive.																		
-if both signs are positive then both factors carry the same sign as the <b>b</b> term.	The <b>b</b> term is negative so both factors will have a minus sign.																		
-if one sign is positive and one sign is negative then the factors will carry different signs.																			
- Find all the factors of the <b>a</b> term. These are the choices for the first term in each factor.	$6x^2 = 1x \bullet 6x$ $6x^2 = 2x \bullet 3x$																		
-Find all the factors of the <b>c</b> term. These are the choices for the second term in each factor.	$10 = 1 \bullet 10$ $10 = 2 \bullet 5$																		
-Check each set of factors by multiplying the factors.	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Trial</th> <th style="text-align: left;">Check</th> </tr> </thead> <tbody> <tr> <td><math>(x - 1)(6x - 10)</math></td> <td><math>= 6x^2 - 16x + 10</math></td> </tr> <tr> <td><math>(6x - 1)(x - 10)</math></td> <td><math>= 6x^2 - 61x + 10</math></td> </tr> <tr> <td><math>(x - 2)(6x - 5)</math></td> <td><math>= 6x^2 - 17x + 10</math></td> </tr> <tr> <td><math>(6x - 2)(x - 5)</math></td> <td><math>= 6x^2 - 32x + 10</math></td> </tr> <tr> <td><math>(3x - 10)(2x - 1)</math></td> <td><math>= 6x^2 - 23x + 10</math></td> </tr> <tr> <td><math>(3x - 1)(2x - 10)</math></td> <td><math>= 6x^2 - 32x + 10</math></td> </tr> <tr> <td><math>(3x - 5)(2x - 2)</math></td> <td><math>= 6x^2 - 16x + 10</math></td> </tr> <tr> <td><math>(3x - 2)(2x - 5)</math></td> <td><math>= 6x^2 - 19x + 10</math></td> </tr> </tbody> </table>	Trial	Check	$(x - 1)(6x - 10)$	$= 6x^2 - 16x + 10$	$(6x - 1)(x - 10)$	$= 6x^2 - 61x + 10$	$(x - 2)(6x - 5)$	$= 6x^2 - 17x + 10$	$(6x - 2)(x - 5)$	$= 6x^2 - 32x + 10$	$(3x - 10)(2x - 1)$	$= 6x^2 - 23x + 10$	$(3x - 1)(2x - 10)$	$= 6x^2 - 32x + 10$	$(3x - 5)(2x - 2)$	$= 6x^2 - 16x + 10$	$(3x - 2)(2x - 5)$	$= 6x^2 - 19x + 10$
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Which one is the answer? The one with the correct middle term.	$(3x - 2)(2x - 5) = 6x^2 - 19x + 10$																		