Algebra 12-5 Factoring $ax^2 + bx + c$

Warm-Up

Solve by factoring.

1. $x^2 + 10x - 24 = 0$

F L −2, 12

$(x-2)(x+12)=0$

$x-2=0$ $\quad x+12=0$

$x=2$ $\quad x=-12$

2. $t^2 + 9t + 18 = 0$

3, 6

F OI L

$(t+3)(t+6)=0$

$t+3=0$ $\quad t+6=0$

$-3\ -3$ $\quad -6\ -6$

$t=-3$ $\quad t=-6$

May 29, 2014

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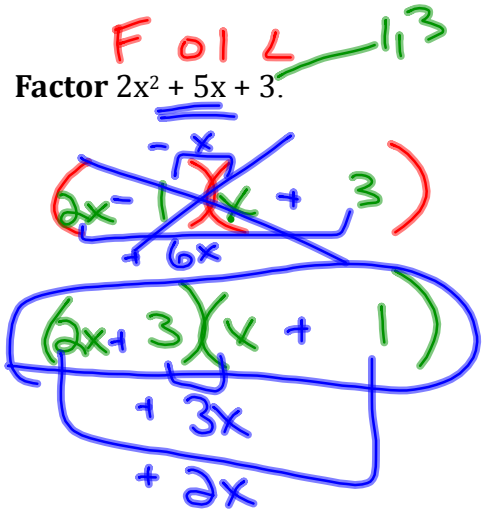
Factor $2x^2 + 5x + 3$.



1. Multiply "a value and c value"
2. Factor.
3. _____ by the number you multiplied by in step _____.
4. _____.
5. Place numbers in the _____ in front of the variable.
6. Check by _____ or _____.

Examples

1. $2n^2 - 3n - 20$

F O I L

1,20
2,10
4,5

$(2n + 5)(n - 4)$

$+5n$
$-8n$

2. $6y^2 - 29y - 5 = 0$

1,6
2,3

solve

1,5

$(6y + 1)(y - 5) = 0$

$+1y$
$-30y$

Assignment: 12-5 #'s 1 a-d, 2-8, 12-16, 20, 22

$6y + 1 = 0$
$-1 \quad -1$
$\frac{6y}{6} = \frac{-1}{6}$
$y = -\frac{1}{6}$

$y - 5 = 0$
$y = 5$

1. a)
   b)
   c)
   d)

2. a)
   b)

3.

4. $2x^2 + 7x + 5$

F: $(2x)(x)$ → $2x^2$

O/I: $(2x + 5)(x + 1)$ → $+5x$ and $+2x$

L: $(2x + 5)(x + 1)$ → $+5$

$+5x + 2x = +7x$

5. $7x^2 - 36x + 5$

F: $(7x - 1)(x - 5)$ → $7x^2$

O/I: $(7x - 1)(x - 5)$ → $-1x$ and $-35x$

L: $(7x - 1)(x - 5)$ → $+5$

$-1x - 35x = -36x$

6. $y^2 + 10y + 9$

$(y + 1)(y + 9)$

1,4
2,2

F O I L

7. $4x^2 - 12x - 7$

$(2x + 1)(2x - 7)$

$+2x$

$-14x$