Starter $x \cdot x = x^2$ 11 JAN 2017

Multiply & Simplify.

$(x+3)(x-2)(x+7)$

$x^2 - 2x + 3x - 6$

$(x^2 + x - 6)(x+7)$

$x^3 + x^2 - 6x + 7x^2 + 7x - 42$

$x^3 + 8x^2 + x - 42$

Homework

Homework: Multiplying Polynomials

1) $(5x - 8)(2x - 3)$

$10x^2 - 31x + 24$

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

$n^2 - 6n - 7$

3) $(3x - 7)(x - 2)$

$3x^2 - 13x + 14$

4) $(3d - 2)(-d^2 - 3d + 2)$

$-3d^3 - 7d^2 + 12d - 4$

5) $(x - 2)(x + 2)$ $x^2 - 4$

Example 1: $(x+3)(x-3)$

$x^2 - 3x + 3x - 9$

$x^2 - 9$

Example 2: $(2x+4)(2x-4)$

$4x^2 - 8x + 8x - 16$

$4x^2 - 16$

$\sqrt{4x^2} = 2x$ $\sqrt{16} = 4$

Example 3: $(7y-2)(7y+2)$

$49y^2 + 14y - 14y - 4$

$49y^2 - 4$ $\sqrt{4} = 2$

$\sqrt{49y^2} = 7y$

Example 4: $(3d-2)(3d+2)$

$-6d$
$+6d$
0

$9d^2 - 4$

$\sqrt{9d^2} = 3d$ $\sqrt{4} = 2$

A problem like this $a^2 - b^2$ is called "the difference of perfect squares" and it factors as $(a+b)(a-b)$

$\sqrt{16} = 4$ $121y^2 - 100$
$\sqrt{x^2} = x$ $= (11y+10)(11y-10)$

$\sqrt{x^4} = x^2$ $\sqrt{121y^2} = 11y$
$\sqrt{a^2} = a$ $\sqrt{100} = 10$

factor

Example 5: $x^2 - 16$

$(x+4)(x-4)$

$\sqrt{x^2} = x$ $\sqrt{16} = 4$

Example 6: $4x^2 - 25$

(factor)

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

$\sqrt{4x^2} = 2x$ $\sqrt{25} = 5$

Practice Work

Copy each problem and factor completely.

1) $9y^2 - 36$

2) $49 - x^2$

3) $16p^2 - 100$