Unit 5 Day 5
5-4 Distribution Cont.

Expand and Simplify:

→ Conjugate Binomials

1) $(x-3)(x+3) = x^2 + 3x - 3x - 9$
   $$= x^2 - 9$$

2) $(x+5)(x-5) = x^2 - 5x + 5x - 25$
   $$= x^2 - 25$$

3) $(2x - 7)(2x+7)$
   $$= 4x^2 + 14x - 14x - 49$$
   $$= 4x^2 - 49$$

"Difference of Squares!"

Multiply w/o Distribution (or FOIL)

1) $(x+2)(x-2) = x^2 - 4$

2) $(3x-1)(3x+1) = 9x^2 - 1$

3) $(x+2y)(x-2y) = x^2 - 4y^2$

Multiplying Three! Binomials

4) $(x-2)(x+2)(x+3) = (x^2 - 4)(x+3)$

   D.o.S.

   $$= x^3 + 3x^2 - 4x - 12$$

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

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

$= (x^2-9)(2x-5)$

$= 2x^3-5x^2-18x+45$

6) $3x(x+3)(x-7) = (3x^2+9x)(x-7)$

$= 3x^3-21x^2+9x^2-63x$

$= 3x^3-12x^2-63x$

7) $(x+5)^3 = (x+5)(x+5)(x+5)$

$(x+5)(x+5) = x^2+5x+5x+25$

$= (x^2+10x+25)(x+5)$

$= x^3+5x^2+10x^2+50x+25x+125$

$= x^3+15x^2+75x+125$

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