Special products 2.1.17

Warm up: Multiply the following $(x+5)(2x-5)$ *and* $(3x^2+2x+1)(2x^2-3x+9)$

We have been multiplying polynomials and now it is time for some special cases.

Square of sums
$(4x+5)^2$ What does the squared mean?
So what we really have is $(4x+5)(4x+5)$ Which we know how to solve
We get $16x^2+40x+25$ Now looking at the first and last term what do you notice? They are both square numbers. What about the middle term? How can we get that term?
$(a+b)^2 = a^2+ab+ab+b^2 = a^2+2ab+b^2$ This is true for any square of sums.

You try:
$(8c+3y)^2$

Square of difference
$(6x-1)^2$ We know that this means 6x-1 times 6x-1 which we can solve and get $36x^2-12x+1$
But let's look at a non-numeric example $(a-b)^2 = a^2-ab-ab+b^2 = a^2-2ab+b^2$ This method works for all square of a difference problems.

You try:
$(5x^2-2y)^2$

See if you can figure out a rule for the following.
$(3n+2)(3n-2)$

Homework PG 461 #5-10