Index Card #11 (Back & Front)

Complex Numbers

Simplifying Complex Numbers:

- When subtracting --- distribute the NEGATIVE
- When adding/subtracting/multiplying/dividing ---- treat the *i* like a variable
- When you have i^2 Think back to *i*

When simplifying Powers of *i*:

Remember that when you have a power to a power you multiply
So....What is

i^2 = -1 AND i^4 = 1

So when you simplify:

1. If the power is ODD --- Take out an *i*
   So $i\,(i)^{Power-1}$ THEN
2. Try to divide the power by 4

YES

Rewrite as $(i^4)^{Quotient}$
Now $i^4 = 1$
So $(1)^{Quotient}$
Put in Calculator

NO

3. Then divide the power by 2
   Rewrite as $(i^2)^{Quotient}$
   Now $i^2 = -1$
   So $(-1)^{Quotient}$
   Put in Calculator

Simplifying Fractions With Complex Numbers in Denominator:

i in the denominator you must multiply by the
conjugate (Change the Sign in the Middle)
Distribute or FOIL
Simplify