**Day 2: Complex and Imaginary Numbers**

$$i^{1}=\sqrt{-1}$$

$$i^{2}=-1$$

$$i^{3}=-i$$

$$i^{4}=1$$

**Powers of *i* Shout out:**

How would you solve: 

**Example: Simplify**

|  |  |
| --- | --- |
| 1.
 | 1.
 |
| 1.
 | 1.
 |
|  |  |

* **Complex Number: a number that has a real number and** **an imaginary number**

Standard form: 

**Example 5: Simplify and give your answer in standard form**

a.  b. 

 c. 

**Example 6: Simplify**

 a.  b. $\left(6+4i\right)+(-6-4i)$$\left(6+4i\right)+(-6-4i)$

 c.  d. 

 e.  f. 

**Example 7: State the additive inverse**

a. b.  c. 

Solving Quadratics of the form \_\_\_\_\_+\_\_\_\_\_ = 0

1. 

1. 

1. 

**Day 3: Quadratic Formula**

Solving by the Quadratic Formula

Standard Form of a Quadratic Quadratic Formula

Solve using the quadratic formula:

1. $x^{2}+3x-4=0$ 2. $5m^{2}+7m-2=0$

3. $4x^{2}-8x+13=0$ 4. $2x^{2}+8x+8=0$

Discriminant: Just what is under that radical? (Check under the hood!)

Ex 1: Determine the type and number of solutions of:

a. $5x^{2}+6x-1=0$ b. $2x^{2}-3x+2=0$

c. $x^{2}-4x+4=0$ d. $3x^{2}-2x-14=0$

**Day 4 Completing the Square** $x^{2}-8x+5=0$

**To complete the square:**

1. Move the c term to the other side
2. $(\frac{b}{2})^{2}$
3. Add that number to both sides
4. Make a squared binomial with x and $\frac{b}{2}$
5. Solve for x by $\pm $ square rooting both sides.

Example: Solve by completing the square

a.  b. $x^{2}+12x+4=0$

c.  d. $3x^{2}-12x-7=0$

e.  f. $4x^{2}+8x-9=0$