

LT #7: Complex Numbers

Simplify the follow. (2 points each)

1. i^{35}

$$\begin{array}{r} 8 \\ 4 \overline{) 35} \\ \underline{32} \\ 3 \end{array} \quad i^3 = -i$$

$R = \textcircled{3}$

2. $(3+2i)(4-3i)$

$$\begin{array}{l} 12 - 9i + 8i - 6i^2 \\ 12 - i - 6(-1) \\ 12 - i + 6 \end{array}$$

3. $\frac{(2-i)(3-i)}{(3+i)(3-i)}$

$$\frac{6 - 2i - 3i + i^2}{9 - 3i + 3i - i^2} = \frac{6 - 5i - 1}{9 + 1}$$

$$\frac{5 - 5i}{10} = \frac{1 - i}{2}$$

4. $|-4 + 3i|$

$$\begin{array}{l} \sqrt{(-4)^2 + (3)^2} \\ \sqrt{16 + 9} \\ \sqrt{25} \end{array}$$

Solve using the quadratic equation. (3 points)

5. $x^2 + 5x + 10 = 0$

$$X = \frac{-5 \pm \sqrt{5^2 - 4(1)(10)}}{2(1)} = \frac{-5 \pm \sqrt{25 - 40}}{2}$$

$$= \frac{-5 \pm \sqrt{-15}}{2} = \frac{-5 \pm i\sqrt{15}}{2}$$

6. Graph the complex number $2+3i$. (2 points)

1. $-i$

2. $18 - i$

3. $\frac{1-i}{2}$

4. 5

5. $X = \frac{-5 \pm i\sqrt{15}}{2}$

6.

