

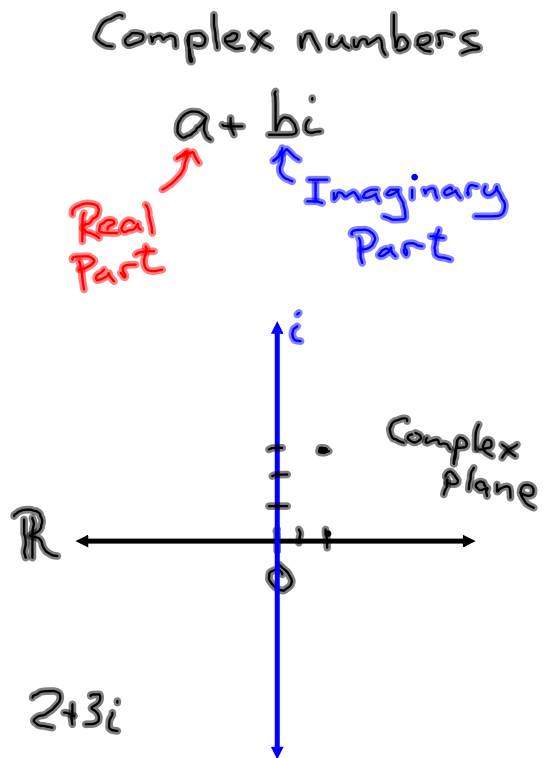
# **Algebra II**

6-8

## Complex Numbers

Summary of Number Systems:

- $\mathbb{N}$  - Natural #  
- Whole
- $\mathbb{Z}$  - Integers
- $\mathbb{Q}$  - Rational  
- Irrational
- $\mathbb{R}$  - Real numbers
- $\mathbb{C}$  - reals + imaginaries  
Complex numbers



Simplify. (pg 295)

$$1) (9 + 2i) + (1 - 7i)$$

$$10 - 5i$$

$$9) -4i(-2 + i)$$

$$8i - 4i^2$$

$$8i + 4$$

$$4 + 8i$$

29)  $\frac{5}{(3+4i)(3-4i)}$  *conjugate pair*

$$\frac{5(3-4i)}{9-16i^2}$$

$$\frac{\cancel{5}(3-4i)}{\cancel{25}}$$

$$\frac{(3-4i)}{5}$$

$$\frac{3}{5} - \frac{4}{5}i$$

41) If  $f(x) = x + \frac{1}{x}$ , find  $f(1+3i)$

$$(1+3i) + \frac{1}{(1+3i)(1-3i)}$$

$$1+3i + \frac{(1-3i)}{1-9i^2}$$

$$\frac{10(1+3i)}{10} + \frac{1-3i}{10}$$

$$\frac{10+30i+1-3i}{10}$$

$$\frac{11+27i}{10}$$

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2-46 even