Sec 5-6

Complex Numbers

Real Numbers

Rational #'s

Irrational #'s

Intergers

Whole #'s

Natural #'s

Imaginary Numbers

Ex:

7i

2 + 5i

Imaginary Numbers:

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

i is called the imaginary unit.

Simplify each.

1. $\sqrt{24}$

$\sqrt{4 \cdot 6}$

$2\sqrt{6}$

2. $\sqrt{-24} = \sqrt{-1 \cdot 4 \cdot 6}$

$2i\sqrt{6}$

Simplify each.

1. $\sqrt{-98}$

$\sqrt{-1 \cdot 49 \cdot 2}$

$7i\sqrt{2}$

2. $\sqrt{-256}$

$16i$

3. $\sqrt{-39}$

$\sqrt{-1 \cdot 39}$

$i\sqrt{39}$

4. $5\sqrt{-18}$ ← $9 \cdot 2$

$5 \cdot i \cdot 3\sqrt{2}$

$15i\sqrt{2}$

Complex Numbers:

any number that can be written
in the form: a + bi (a and b can be any real #)

Standard Form of a Complex Number

Real Part

Imaginary Part

Real Number: when b=0

Imaginary Number: when b≠0 (a may or may not be zero)

Examples of Imaginary #'s: 10 - 7i or 13i

The terms Complex Number and Imaginary Number are quite often used interchangeably.

But these terms aren't the same!

Complex #'s include both Real and Imaginary #'s

Imaginary #'s doesn't include the Real #'s