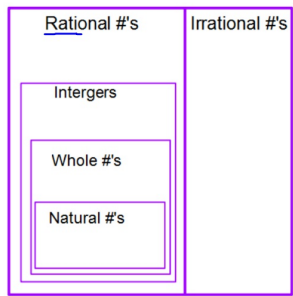


Sec 5-6

Complex Numbers

Real Numbers

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 · 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 $b \neq 0$ (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