

Algebra 2

Name _____

Warm-Up

Date _____ Period _____

Solve each equation by factoring.

1) $x^2 - 49 = 0$

2) $r^2 - 8r + 15 = 0$

3) $b^2 - 13b + 47 = 7$

4) $m^2 - 2m = 35$

No cheating.

5) Write the Quadratic Formula.

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Solve each equation by factoring.

1) $x^2 - 49 = 0$

$x = 7, x = -7$

2) $r^2 - 8r + 15 = 0$

$x = 3, x = 5$

3) $b^2 - 13b + 47 = 7$

$x = 8, x = 5$

4) $m^2 - 2m = 35$

$x = -5, x = 7$

No cheating.

5) Write the Quadratic Formula.

THE NUMBER i AND COMPLEX NUMBERS

THE IMAGINARY NUMBER

The imaginary number, $i = \sqrt{-1}$

Examples:

$$\sqrt{-4} = \pm 2i$$

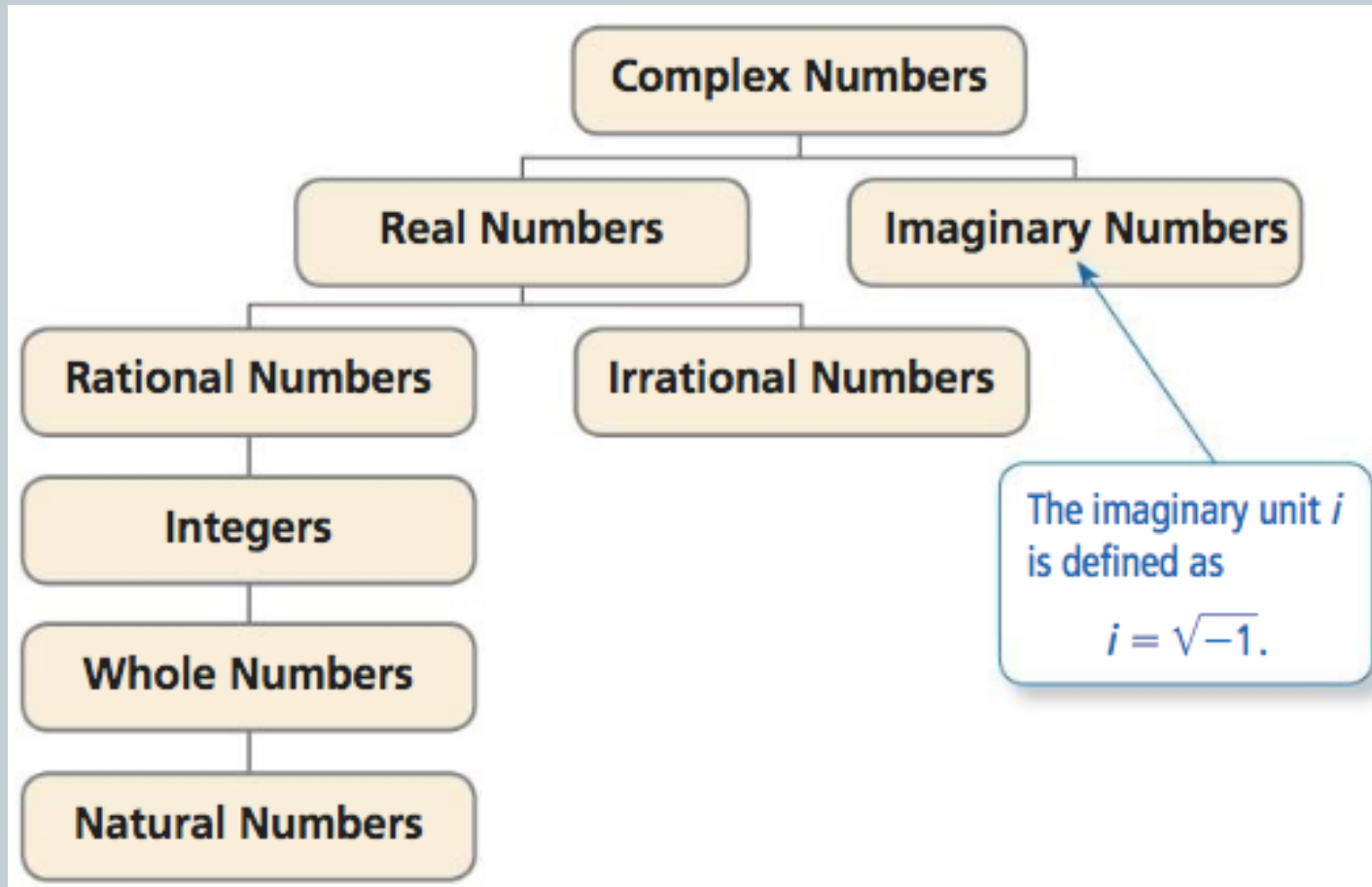
$$\sqrt{-25} = \pm 5i$$

$$\sqrt{-100} = \pm 10i$$

$$\begin{aligned}\sqrt{-72} &= \pm\sqrt{-36 \times 2} \\ &= \pm 6i\sqrt{2}\end{aligned}$$

$$\begin{aligned}3\sqrt{-20} &= \pm 3\sqrt{-4 \times 5} \\ &= \pm 3 \times 2i\sqrt{5} \\ &= \pm 6i\sqrt{5}\end{aligned}$$

TYPES OF NUMBERS



COMPLEX NUMBERS

Complex Numbers have a real part and an imaginary part.

$$a + bi$$

Examples:

$$8 + 5i$$

$$-17.2 + 3.4i$$

$$87.01 - 5.2i$$

COMPLEX NUMBERS

Simplify:

$$1) 2i + 7i = 9i$$

$$\begin{aligned} 2) 7 + 8i - (2 - 6i) \\ &= 7 + 8i - 2 + 6i \\ &= 5 + 14i \end{aligned}$$

COMPLEX NUMBERS

Simplify:

$$3) -8i(4 - 6i)$$

$$= -32i + 48i^2$$

$$= -32i + 48(-1)$$

$$= -32i - 48$$

$$4) (8 + 7i)(-8 - i)$$

$$= -64 - 8i - 56i - 7i^2$$

$$= -64 - 64i - 7(-1)$$

$$= -64 - 64i + 7$$

$$= -57 - 64i$$