

Algebra II

6-7

The Imaginary
Number

Definition of the Imaginary Number - $\sqrt{-1} = i$

$$i^2 = -1$$

Simplify. pg 290

$$1) \sqrt{-81}$$

$$\sqrt{81 \cdot (-1)}$$

$$9i$$

$$13) \sqrt{-5} \cdot \sqrt{-10}$$

1st Step -

Pop the i s out

$$i\sqrt{5} \cdot i\sqrt{10}$$

$$i^2 \sqrt{50}$$

$$-1 \sqrt{25 \cdot 2}$$

$$-5\sqrt{2}$$

$$23) -\frac{2}{i}$$

No i is on the bottom

$$-\frac{2}{i} \cdot \frac{i}{i}$$

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

$$2i$$

Solve.

$$31) x^2 + 144 = 0$$

$$\sqrt{x^2} = \sqrt{-144}$$

$$|x| = 12i$$

$$\{ \pm 12i \}$$

Simplify.

$$37a) \sqrt{-25} + \sqrt{-36}$$

$$5i + 6i$$

$$11i$$

$$37b) \sqrt{-25} \cdot \sqrt{-36}$$

$$5i \cdot 6i$$

$$30i^2$$

$$-30$$

Simplify. Assume each variable represents a real number.

$$43) \sqrt{-12a} \cdot \sqrt{-3a}$$

$$\sqrt{-4 \cdot 3a} \sqrt{-1 \cdot 3a}$$

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

$$2i^2\sqrt{9a^2}$$

$$-2|3a|$$

$$-6a$$

pg 290
2-54even