

Honors Algebra II

Notes Section 1.5

Solve Quadratic Equations by Factoring Square Roots

Radical: _____

Radicand: the # beneath the radical sign

PROPERTIES

I. Product: $\sqrt{ab} =$ _____

II. Quotient: $\sqrt{a/b} =$ _____

Rationalizing: how to eliminate a radical in the denominator.

Conjugates: $a + \sqrt{b}$ and $a - \sqrt{b}$

EXAMPLE 1**Simplify the expression.**

a) $\sqrt{80}$

b) $\sqrt{6} \cdot \sqrt{21}$

c) $\sqrt{4/81}$

d) $\sqrt{7/16}$

e) $\sqrt{98}$

f) $\sqrt{8} \cdot \sqrt{28}$

EXAMPLE 2**Solve.**

a) $3x^2+5=41$

b) $z^2-7=29$

EXAMPLE 3**Simplify by rationalizing.**

a) $\sqrt{5/2}$

b) $\frac{3}{7+\sqrt{2}}$

$7+\sqrt{2}$

c) $\frac{-6}{7-\sqrt{5}}$

$7-\sqrt{5}$

d) $\sqrt{17/12}$

e) $\sqrt{9/8}$

EXAMPLE 4 Find the solutions.

a) $\frac{1}{5}(Z+3)^2 = 7$

b) $3(X-2)^2 = 40$

EXAMPLE 5 For a science competition, students must design a container that prevents an egg from breaking when dropped from a height of 50 feet. **How long does the container take to hit the ground?**

Height Function: $h(t) = -16t^2 + h_0$