Name:_____ Hour: _____ Date: _____

NOTES: Section 6.1 – Evaluate *n*th Roots and Use Rational Exponents

Goals: #1 - I can interchange an expression between rational and radical notation, and evaluate the expression (using a calculator).

#2 - I can evaluate a rational or radical expression (without using a calculator).

#3 - I can solve equations using nth roots.



Homework: Lesson 6.1 Worksheet

Exploration #1: Work with a partner and answer the following questions.

1. Use a calculator to evaluate the following expressions.
   a. $\sqrt{25} =$
   b. $(25)^{1/2} =$
   c. $(a^{1/3})^3 =$
   d. $(x^{1/4})^4 =$
   e. $\sqrt[3]{64} =$
   f. $(64)^{1/3} =$

Notes:

There are _____ properties of _____ (a/b) exponents:

- $a^{m/n} =$
- $a^{-m/n} =$

Name:_____ Hour: _____ Date: _____

Example #1: Rewrite the expression using rational exponent notation.

1. $\sqrt[4]{13}$
2. $\sqrt[7]{3}$
3. $(\sqrt[4]{11})^9$

Example #2: Rewrite the expression using radical notation.

1. $9^{1/5}$
2. $12^{2/7}$
3. $4^{3/4}$

Example #3: Evaluate the expression without using a calculator.

1. $16^{3/2}$
2. $32^{-3/5}$
3. $\sqrt[3]{-64}$

You practice: Evaluate the expression without using a calculator.

1. $4^{5/2}$
2. $64^{-2/3}$
3. $(\sqrt[4]{16})^5$

Name:_____ Hour: _____ Date: _____

Example #4: Evaluate the expression using a calculator. Round answers to the nearest hundredth.

1. $(-9)^{1/5}$
2. $12^{3/8}$
3. $(\sqrt[4]{7})^3$

You practice: Evaluate the expression using a calculator. Round answers to the nearest hundredth.

1. $4^{2/5}$
2. $64^{-2/3}$
3. $(\sqrt[3]{-30})^2$

Notes:

The inverse opeartion of squaring a number is taking the _____ of that number.

Similarily, the inverse opeartion of raising a number to the power of _____ is taking the _____ of that number.

We use this idea to _____ using _____.

Example #5: Solve the equation.

1. $4x^5 = 128$
2. $(x-3)^4 = 21$

You practice: Solve the equation.

1. $\frac{1}{4}x^3 = 2$
2. $(x+5)^4 = 16$