5 (AM) Advanced Mastery 100%
4 (M) Mastery 93%
3 (VM) Vital Mastery 82%
2 (FM) Foundational Mastery 70%
1 (NYM) Not Yet Mastered 45%
0 (NA) No Attempt 0%

Name: _____

Per: _____ Date: _____

Pre-Assessment

IM2 – 1.2 (A – V1 Pre) Rewriting & Solving Rational Exponent & Radical Expressions

Standards & Skill Mastery

Student Self-Score	Skills Assessed / Goals	Teacher Score
	N.RN.2 – I can rewrite rational exponents and radicals in equivalent forms, applying the rules of integer exponents.	

Pre-Assessment Plan

Check all that apply. To study for this assessment, I will…

- ☐ independently, rework this pre-assessment.
- ☐ complete all of my practice.
- ☐ watch tutorials online.
- ☐ study my notes until I understand them.
- ☐ work through practice problems & recheck answers.

To maintain or improve my mastery, I will study by…

_____

_____

_____

_____

_____

Key Terms, Formulas, & Notes

Equivalent Expressions ≡ expressions with equal values

Rational Exponent ≡ an exponent that is a rational (fractional) number

Roots ≡ The root of a number x is another number, which when multiplied by itself a given number of times, equals x

To Calculate the nth Root

1. Type the number for n (ex. 3)
2. Press 2nd
3. Press ^
4. Type a (ex. 125)
5. Enter

Directions - *(N.RN.2) Select an expression that is equivalent to each radical below.*

1. $\sqrt[9]{3^6}$
   a. $3^{\frac{2}{3}}$
   b. $3^{\frac{3}{2}}$
   c. 3^3
   d. 3^{15}

2. $\sqrt[3]{x^5}$
   a. $x^{\frac{3}{5}}$
   b. x^{15}
   c. x^8
   d. $x^{\frac{10}{6}}$

3. $(2^4)^{\frac{2}{6}}$
   a. 2
   b. 16^{-4}
   c. $(2 \bullet 2 \bullet 2 \bullet 2)^{\frac{1}{3}}$
   d. $2^{\frac{16}{6}}$

Directions – (N.RN.2) *Determine whether each expression is equivalent to the following rational expressions.*

4. $\sqrt[7]{x^6}$

	Yes	No
$x^{\frac{7}{6}}$		
$\sqrt{42x}$		
$x^{\frac{6}{7}}$		
$\left(\sqrt[7]{x}\right)^6$		
$(x^3)^{\frac{4}{14}}$		

5. $(2x^3)^{\frac{2}{5}}$

	Yes	No
$\sqrt[5]{4x^6}$		
$x\sqrt[5]{4}$		
$\sqrt[5]{2x^6}$		
$x\sqrt[5]{4x}$		
$\sqrt[5]{2 \bullet 2 \bullet xxxxxx}$		

Directions – (N.RN.2) *Rewrite the following radical expression as a single rational expression (use product rule), then write at least 2 more equivalent forms.*

6. $\sqrt[4]{4^2} \bullet \sqrt[4]{4^3}$

Directions – (N.RN.2) *Rewrite the following rational exponent as a single radical expression (use quotient rule), then write at least 2 more equivalent forms.*

7. $\dfrac{16^{\frac{5}{4}}}{16^{\frac{1}{4}}}$

Directions – (N.RN.2) *Simplify the following expression.*

8. $81^{\frac{1}{4}}\left(\sqrt[4]{81^2} + 81^2\right)$

Directions – (N.RN.2) *Error Analysis: Circle the first mistake made in the student's work below. Then, rework the problem in the box below, showing all steps.*

9. Given $x^3 = 25$

   Step 1 $\cancel{\sqrt[3]{x^3}} = \sqrt[3]{25}$

   Step 2 $x = 25^{\frac{1}{3}}$

   Step 3 $x = (5^2)^{\frac{1}{3}}$

   Step 4 $x = \sqrt{5^3}$ Done!