Algebra 2 Honors- Week 16 Homework

**Monday-**

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**Tuesday-** Catch up on homework from last week and study for test tomorrow!

# Practice Test for Rational Functions Unit

**Learning Objectives:**

1. Find the quotient of monomials.
2. Simplify expressions with negative exponents.
3. Graph rational functions using transformations.
4. Identify the asymptotes, domain, range and intercepts of a rational function.
5. Model a scenario using rational functions.
6. Simplify rational expressions.
7. Solve an equation with rational coefficients.
8. Solve rational equations.

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| **Question #** | **Learning Objective** | **Know It** | **Feel Unsure** |  | **Right** | **Wrong** | **Simple Mistake** | **Need to Study** |
| 1 | A |  |  |  |  |  |  |  |
| 2 | B |  |  |  |  |  |  |  |
| 3 | C |  |  |  |  |  |  |  |
| 4 | D |  |  |  |  |  |  |  |
| 5 | D |  |  |  |  |  |  |  |
| 6 | E |  |  |  |  |  |  |  |
| 7 | F |  |  |  |  |  |  |  |
| 8 | H |  |  |  |  |  |  |  |
| 9 | I |  |  |  |  |  |  |  |

1. $\frac{m^{4}}{4n^{3}}∙\left(\frac{2n}{m^{3}}\right)^{3}$ 2. $\frac{\left(p^{2}q\right)^{-1}}{p^{2}q^{-1}}$ 3. Graph: $f\left(x\right)=-\frac{1}{x+2}-3$

4. Identify the domain, range and intercepts of the function in #3.

5. Write a rational function that has no y-intercepts and exists only in the first and second quadrants.

6. To attend a power lifting class, you must pay $100 per year plus $3 per class.

 a) What is the average cost per class if you attend 10 classes?

 b) What is the average cost per class if you attend 50 classes?

 c) Write a function that find the average cost C give classes attended x.

 d) What is the domain of this function and what does it say about the scenario?

 e) Another power lifting class offers classes for $6 each with no annual fee. Is this a better deal? Explain your

reasoning.

7. Simplify $\frac{y^{2}-4}{y^{2}+y-6}$

8. Solve: $\frac{x+1}{6}=x-\frac{3x-2}{4}$

9. Solve: $\frac{2}{x+2}+\frac{x^{2}}{x^{2}-4}=\frac{1}{x-2}$

**Wednesday-** Test Day! (No Homework)

**Thursday-**

**Rational Exponents Assignment**

**Simplify.**

1. $81^{\frac{1}{2}}$ 2. $27^{\frac{2}{3}}$ 3. $125^{-\frac{1}{3}}$ 4. $16^{\frac{3}{4}}$ 5. $-9^{\frac{3}{2}}$ 6. $25^{\frac{3}{2}}$

**Rewrite in exponential form.**

7. $\sqrt{x^{5}y^{6}}$ 8. $\sqrt[3]{x^{5}y^{6}}$ 9. $\sqrt[4]{16ab^{6}}$ 10. $\sqrt[3]{\frac{x^{2}y^{7}}{z^{3}}}$

**Express in simplest radical form.**

11. $\sqrt[3]{4}∙\sqrt[3]{4}$ 12. $\sqrt{8}∙\sqrt[6]{8}$ 13.$ \frac{\sqrt[3]{4}}{\sqrt[6]{2}}$ 14. $\sqrt[10]{32}÷\sqrt[8]{4}$

15. Determine which two expressions are not equivalent to $\sqrt[3]{\frac{2^{4}}{4^{6}}}$. Explain how you know.

 a)$ \frac{2^{\frac{4}{3}}}{4^{\frac{6}{3}}}$ b) $2^{\frac{4}{3}}∙2^{\frac{12}{3}}$ c)$ 2^{-\frac{8}{3}}$ d)$ \frac{1}{2^{\frac{6}{3}}∙2^{\frac{2}{3}}}$ e)$ \frac{1}{4\sqrt{8}}$

**Friday-**

**Real Number Exponents Assignment**

**Simplify.**

1. $3^{\sqrt{2}}∙3^{\sqrt{2}}$ 2. $\left(3^{\sqrt{2}}\right)^{2}$ 3. $\left(3^{\sqrt{2}}\right)^{\sqrt{2}}$ 4. $(10^{2})^{π}$ 5. $\sqrt{10^{2π}}$

6. $10^{2π+3}∙10^{5-π}$ 7. $\frac{10^{\sqrt{3}-2}}{10^{\sqrt{3}+2}}$ 8. $\frac{6^{\sqrt{2}}∙6^{\sqrt{8}}}{6^{3\sqrt{2}}}$ 9.$ \left(\sqrt{2}^{\sqrt{2}}\right)^{\sqrt{2}}$

**Solve the equation.**

10. $a^{\frac{3}{4}}=8 $ 11. $y^{-\frac{1}{2}}=6$ 12. $4p^{\frac{3}{5}}=24$ 13.$ \left(3n-1\right)^{\frac{3}{2}}=125$

14. $3^{x}=27$ 15. $2^{x}=\frac{1}{8}$ 16.$ 25^{2x}=5^{x+6}$ 17. $4^{x+1}=8^{x-3}$

18. $6^{x^{2}+7}=36^{4x}$