

Review For Radicals Quiz

NAME: _____

<p>1. Simplify Nth Roots</p> <p>a) Convert:</p> <p>b) Evaluate:</p> <p>c) Simplify:</p> <p>d) Simplify with variables:</p>	<p>2. Operations with Nth Roots</p> <p>a) Multiply/Divide:</p> <p>b) Add/Subtract:</p> <p>c) Rational Exponent Properties</p>
<p>3. Rationalize Nth Roots:</p> <p>a) Monomial Denominator b) Binomial Denominator</p>	
<p>4. Solve Power Equations</p> <p>a) Isolate the power.</p> <p>b) nth root both sides.</p> <p>c) Even roots need \pm. Odd roots do not need \pm.</p>	<p>5. Solve Radical Equations</p> <p>a) Isolate the radical.</p> <p>b) Raise both sides to the nth power.</p>

SECTION 1: Simplifying Nth Roots

Convert the radical form to exponential form and vice versa.

1. $x^{1/10} =$	2. $x^{4/5} =$	3. $x^{2/3} =$
4. $\sqrt[8]{m}$	5. $\sqrt{x^5}$	6. $\sqrt[3]{ab^4}$

Convert and evaluate.

7. $196^{1/2}$	8. $81^{3/4}$	9. $(-64)^{2/3}$
10. $32^{3/5}$	11. $1000^{-2/3}$	12. $\left(\frac{49}{16}\right)^{-1/2}$

Simplify the nth roots.

13. $\sqrt{-128}$	14. $\sqrt[3]{-128}$	15. $\sqrt[4]{80^2}$
16. $(\sqrt[5]{-96})^2$	17. $\sqrt[3]{250}$	18. $\sqrt[3]{162}$

Simplify the nth roots (with variables).

19. $\sqrt[3]{108x^7}$	20. $\sqrt[4]{48x^7y^{13}}$	21. $\sqrt[3]{-56a^8b^{21}c^4}$
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SECTION 2: Operations with Nth Roots

Multiply/Divide.

1. $\sqrt[4]{8} \cdot 3\sqrt[4]{8}$	2. $\sqrt[5]{\frac{-160}{5}}$
3. $3\sqrt[4]{8} \cdot 5\sqrt[4]{2}$	4. $\frac{\sqrt[3]{-256}}{\sqrt[3]{2}}$

Add/Subtract.

5. $\sqrt[3]{2} - 7\sqrt[3]{2}$	6. $\sqrt[3]{128} - \sqrt[3]{250}$
7. $5\sqrt[4]{32} - \sqrt[4]{2}$	8. $\sqrt{-45} - \sqrt{-125}$

Exponent properties with nth roots (multiply, divide, power to power)

9. $x^{\frac{2}{3}} \cdot x^{\frac{1}{5}}$	10. $\left(x^{\frac{2}{3}}\right)^{\frac{3}{7}}$	11. $\frac{x^{\frac{1}{4}}}{x^{\frac{2}{3}}}$
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SECTION 3: Rationalize the Denominator

Rationalize the denominator.

1. $\frac{5}{\sqrt{6}}$

2. $\frac{-2}{6\sqrt{3}}$

3. $\frac{1}{5-\sqrt{3}}$

4. $\frac{1+\sqrt{3}}{5+\sqrt{3}}$

5. $\frac{1}{\sqrt[3]{5}}$

6. $\frac{\sqrt[4]{5}}{\sqrt[4]{3}}$

5. $\frac{1}{4\sqrt[3]{2}}$

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

SECTION 4: Solve Power Equations

5. $-2x^2 - 10 = 152$

6. $\frac{1}{4}x^3 = -2$

7. $6x^4 = 486$

8. $\frac{1}{5}(x-3)^4 + 8 = 133$

9. $(x-1)^3 + 3 = -122$

10. $(x+5)^5 = 25$

11. $2(x-8)^2 - 8 = -108$

12. $\frac{3}{4}x^5 = -240$

SECTION 5: Solve Radical Equations

1. $\sqrt{6x+1}+9=16$	2. $2(x-1)^{1/2}=5$
3. $\sqrt{\frac{2x}{3}}+6=8$	4. $\sqrt{5x-7}=\sqrt{3x+3}$
5. $4\sqrt{x}=\sqrt{4x+27}$	6. $\sqrt[3]{5x-1}-2=2$
7. $2\sqrt[3]{x-5}+13=3$	8. $\sqrt[4]{x-5}=2$
9. $\sqrt{7x+15}=x+1$	10. $\sqrt{21x+1}=x+5$

SECTION 6: SOL PRACTICE

1. Which expression is equivalent to $2\sqrt{12}-3\sqrt{27}+2\sqrt{48}$?

- A $4\sqrt{3}$
- B $\sqrt{3}$
- C $3\sqrt{3}$
- D $2\sqrt{3}$

2. Which expression is equivalent to $\sqrt{\frac{7x}{16}}$?

- A $\frac{7x}{4}$
- B $\frac{7x}{8}$
- C $\frac{\sqrt{7x}}{4}$
- D $\frac{\sqrt{7x}}{8}$

3. What is the solution to $|x + 4| < 2$?

- A $x < -6$ or $x > -2$
- B $-6 < x < -2$
- C $x < -2$
- D $2 < x < 6$

4. Which expression is equivalent to $\sqrt{75x^3} - \sqrt{27x^3}$, if $x > 0$?

- A $4x\sqrt{6x}$
- B $4x\sqrt{3x}$
- C $2x\sqrt{6x}$
- D $2x\sqrt{3x}$

5. Which is simplified form of the following expression?

$$32^{\frac{3}{5}}$$

- A 6553.6
- B 8
- C 6
- D $\sqrt[5]{96}$

