

NOTES: Nth Roots**DAY 2****RATIONAL EXPONENTS:****NEGATIVE EXPONENTS:**

1. $100^{\frac{1}{2}} =$	2. $16^{\frac{1}{4}} =$	3. $100,000^{\frac{1}{5}} =$	4. $27^{\frac{1}{3}} =$
5. $225^{\frac{1}{2}} =$	6. $216^{\frac{1}{3}} =$	7. $1,000^{\frac{1}{3}} =$	8. $1^{\frac{1}{4}} =$
1. $100^{\frac{3}{2}} =$	2. $16^{\frac{3}{4}} =$	3. $1000^{\frac{2}{3}} =$	4. $25^{\frac{3}{2}} =$
5. $8^{\frac{4}{3}} =$	6. $64^{\frac{2}{3}} =$	7. $64^{\frac{3}{2}} =$	8. $32^{\frac{3}{5}} =$
1. $10^{-2} =$	2. $16^{-\frac{1}{2}} =$	3. $1000^{-\frac{2}{3}} =$	4. $\left(\frac{1}{4}\right)^{-\frac{1}{2}} =$
5. $6^{-3} =$	6. $32^{-\frac{3}{5}} =$	7. $7^{-2} =$	8. $\left(\frac{9}{16}\right)^{-\frac{1}{2}} =$

NOTES: Simplifying Radicals and Operations

SIMPLEST FORM: if the radicand has no perfect nth powers as factors and any denominator is rationalized.

LIKE RADICALS: radical expressions with the same index and radicand (addition and subtraction)

Simplify all radicals.

1. $\sqrt[3]{-16}$	2. $3\sqrt[4]{256}$
3. $\sqrt[3]{-8x^9y^{10}}$	4. $\sqrt[4]{16x^{12}y^{10}}$

Operations with all radicals.

5. $\sqrt[4]{6} \cdot \sqrt[4]{8}$	6. $3\sqrt[4]{8} \cdot 5\sqrt[4]{2}$
7. $\frac{\sqrt[3]{-256}}{\sqrt[3]{2}}$	8. $\sqrt{-45} - \sqrt{-125}$
9. $\sqrt[3]{128} - \sqrt[3]{250}$	10. $6\sqrt[3]{5} + 2\sqrt[3]{5}$

PRACTICE: RADICAL PROPERTIES

Simplify the radicals.

1. $\sqrt{48}$	2. $\sqrt{75} =$	3. $5\sqrt[3]{64}$
4. $3\sqrt[4]{32}$	5. $10\sqrt[5]{32}$	6. $\sqrt[3]{x^3}$
7. $\sqrt[3]{x+4}^3$	8. $\sqrt[7]{x^7}$	9. $\sqrt{x^7}$
10. $\sqrt{100x^6}$	11. $\sqrt{32x^{13}}$	12. $\sqrt[4]{x^{19}}$
13. $\sqrt{64x^4 y^{100}}$	14. $\sqrt[3]{16x^{11}}$	15. $\sqrt[4]{64x^4 y^{100}}$

Simplify the radicals by adding, subtracting, multiplying, or dividing.

16. $\sqrt{3} \cdot \sqrt{5}$	17. $6\sqrt{3}\sqrt{3} =$	18. $3\sqrt{20} \cdot 6\sqrt{5}$
19. $\sqrt{32} + 3\sqrt{2}$	20. $2\sqrt{27} - 3\sqrt{48}$	21. $6\sqrt[3]{32} - 5\sqrt[3]{4}$

CHOOSE 5 of the 8 questions to simplify.

1. $\sqrt[4]{2} \cdot \sqrt[4]{8}$

2. $\frac{\sqrt[4]{32}}{\sqrt[4]{2}}$

3. $\frac{\sqrt[4]{192}}{\sqrt[4]{6}}$

4. $\left(3^{3/2}\right)^2$

5. $\sqrt[3]{7} \cdot \sqrt[3]{49}$

6. $\left(\frac{54}{64}\right)^{1/3}$

7. $\frac{11}{\sqrt[4]{11}}$

8. $5^{1/4} \cdot 5^{3/2}$