

# Unit 3---LESSON 1-Properties of Radical Exponents

Solve the equation. Round your answers to two decimal places when appropriate.

1.  $2x^4 = 162$   
\_\_\_\_\_

2.  $(x - 2)^3 = 10$   
\_\_\_\_\_

3.  $6x^4 = 3750$   
\_\_\_\_\_

4.  $(x - 4)^3 = 216$   
\_\_\_\_\_

5.  $(x - 4)^4 = 625$   
\_\_\_\_\_

Write each expression in radical form:

1.  $7^{\frac{1}{2}}$  \_\_\_\_\_

2.  $4^{\frac{4}{3}}$  \_\_\_\_\_

3.  $2^{\frac{5}{3}}$  \_\_\_\_\_

4.  $7^{\frac{4}{3}}$  \_\_\_\_\_

5.  $6^{\frac{3}{2}}$  \_\_\_\_\_

6.  $2^{\frac{1}{6}}$  \_\_\_\_\_

Write each expression in exponential form:

1.  $\sqrt[6]{2}$  \_\_\_\_\_

2.  $(\sqrt{10})^3$  \_\_\_\_\_

3.  $(\sqrt[4]{2})^5$  \_\_\_\_\_

4.  $(\sqrt[4]{5})^5$  \_\_\_\_\_

5.  $\sqrt[3]{2}$  \_\_\_\_\_

6.  $\sqrt[6]{10}$  \_\_\_\_\_

Write each expression in radical form:

1.  $(5x)^{-\frac{5}{4}}$  \_\_\_\_\_

2.  $(5x)^{-\frac{1}{2}}$  \_\_\_\_\_

3.  $(10x)^{\frac{3}{2}}$  \_\_\_\_\_

4.  $a^{\frac{6}{5}}$  \_\_\_\_\_

5.  $(6x)^{1.5}$  \_\_\_\_\_

6.  $x^{-\frac{1}{2}}$  \_\_\_\_\_

Write each expression in exponential form:

1.  $(\sqrt[4]{x})^3$  \_\_\_\_\_

2.  $(\sqrt[3]{6x})^4$  \_\_\_\_\_

3.  $(\sqrt[3]{3x})^4$  \_\_\_\_\_

4.  $\sqrt{6x}$  \_\_\_\_\_

5.  $\frac{1}{(\sqrt{3x})^5}$  \_\_\_\_\_

6.  $\sqrt[4]{x}$  \_\_\_\_\_

Simplify

1.  $3^{\frac{1}{2}} \cdot 3^{\frac{3}{2}}$  \_\_\_\_\_

2.  $5^{\frac{1}{2}} \cdot 5^{\frac{1}{4}}$  \_\_\_\_\_

3.  $6^{\frac{1}{2}} \cdot 6^{\frac{1}{3}}$  \_\_\_\_\_

4.  $(4^{\frac{3}{2}})^2$  \_\_\_\_\_

5.  $(2^{\frac{1}{4}} \cdot 2^{\frac{1}{2}})^8$  \_\_\_\_\_

6.  $\sqrt[5]{8^5}$  \_\_\_\_\_

7.  $\sqrt{75}$  \_\_\_\_\_

8.  $3\sqrt{24}$  \_\_\_\_\_

9.  $\frac{2}{3}\sqrt{28}$  \_\_\_\_\_

10.  $\sqrt[3]{48}$  \_\_\_\_\_

11.  $\sqrt{\frac{2}{3}}$  \_\_\_\_\_

12.  $\frac{\sqrt{5}}{\sqrt{32}}$  \_\_\_\_\_

13.  $\frac{\sqrt[3]{2}}{\sqrt[3]{7}}$  \_\_\_\_\_

Solve the following radical equations:

1.  $\sqrt[3]{x} = -3$  \_\_\_\_\_

2.  $\sqrt[3]{2x + 3} = -2$  \_\_\_\_\_

3.  $\sqrt{2x + 1} = -3$  \_\_\_\_\_

4.  $\sqrt[4]{x + 6} = 1$  \_\_\_\_\_

5.  $\sqrt[3]{3x - 1} = -3$  \_\_\_\_\_

6.  $\sqrt[4]{x - 3} = 3$  \_\_\_\_\_

7.  $\sqrt[6]{2x + 4} = 2$  \_\_\_\_\_

8.  $\sqrt[4]{\frac{1}{2}x} = 3$  \_\_\_\_\_

# Unit 3----Lesson 1-Solving Radical Equations:

## CLASSWORK/HOMEWORK

Solve the following:

1.  $\sqrt{x-1} = 2$

2.  $\sqrt{x+2} = 3$

3.  $\sqrt{4x+9} = 5$

4.  $\sqrt[3]{x} = -8$

5.  $3\sqrt{x} - 9 = 3$

6.  $\sqrt{2x+1} = 5$

7.  $7 + \sqrt[3]{2x-1} = 10$

8.  $\sqrt{2x-1} + 7 = 4$

9.  $\sqrt{2x+1} = 3$

10.  $\sqrt{x+3} = 2x$

11.  $\sqrt{6x+1} = 2x + 1$

12.  $\sqrt{x+4} + 2 = -x$

13.  $\sqrt{5x+1} + 5 = 3x$

14.  $\sqrt{3x^2-2} = x + 2$

15.  $\sqrt{2x^3+2} = x + 1$