Lesson 6.2 Worksheet

Name: _____

Simplify the expression using the properties of radicals and rational exponents.

1.) $x^{1/4} \cdot y^{1/4}$

2.) $\left(\frac{8^4}{3^4}\right)^{-1/4}$

3.) $\frac{11}{\sqrt[4]{11}}$

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

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

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

7.) $\frac{\sqrt[5]{5}}{\sqrt[5]{27}}$

Simplify the expression. Assume all variables are positive.

8.) $x^{1/4} \cdot x^{1/3}$

9.) $\sqrt{x^{2/5}}$

10.) $\left(x^{1/2}\right)^{2/7}$

11.) $\sqrt[3]{16x^4}$

12.) $\left(\frac{x^3}{32}\right)^{1/5}$

13.) $\frac{\sqrt[3]{64x^3y}}{4x^{-3}y}$

14.) $\dfrac{x^{11/6}}{x^{7/6}}$

Perform the indicated operation. Assume all variables are positive.

15.) $\sqrt[3]{81} + \sqrt[3]{24}$

16.) $5\sqrt[3]{48} - \sqrt[3]{750}$

17.) $3\left(x^{1/2}\, y^3\right)^2 - (x^3\, y^{18})^{1/3}$

Write the expression in simplest form. Assume all variables are positve.

18.) $\sqrt[3]{108} \bullet \sqrt[3]{4}$

19.) $\sqrt[6]{256}$

20.) $\sqrt[4]{12x^2y^6z^{12}}$

21.) $\sqrt[3]{4x^3y^5} \bullet \sqrt[3]{12y^2}$

22.) $\sqrt[3]{\dfrac{81x^2y^3}{8xy^4z}}$

23.) The maximum horiztonal distance *d* that an object can travel when launched at an optimum angle of projection is given by:

$$d = \frac{v_0\sqrt{(v_0)^2 + 2gh_0}}{g}$$

where h_0 is the objects initial height, v_0 is its initial speed, and g is the acceleration due to gravity. Simplify the model when $h_0 = 0$.