Algebra 2 CC Name _____

Operations with Rational Expo HW

1.) Explain how $\left(4^{\frac{1}{3}}\right)^2$ can be written as the equivalent radical expression $\sqrt[3]{16}$.

2.) Write $x\sqrt[4]{x^3}$ as a single term with a rational exponent.

3.) Write $\sqrt{16x^2} \bullet x^{\frac{2}{3}}$ as a single term with a rational exponent.

4.) Write $5^{\frac{1}{2}} \bullet 5^{\frac{1}{3}}$ as a single term with a rational exponent.

5.) Write $\frac{\sqrt{x}}{\sqrt[4]{x}}$ as a single term with a rational exponent.

6.) Write $\frac{4^{3x+2}}{4^{x-1}}$ as a single term with a rational exponent.

7.) Write $\sqrt[3]{8x^6} \bullet x^{\frac{3}{2}}$ as a single term in simplest ***radical form***.

Simplify the following, in simplest radical form.

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

9.) $\sqrt{24x^2} + \sqrt{96x^2}$

10.) $\sqrt[4]{32} - \sqrt[4]{2}$

11.) $2\sqrt[3]{x^2} + \sqrt[3]{27x^2}$

12.) The espression $2xy \bullet \sqrt{2xy}$ is equivalent to

(a) $2^{\frac{1}{2}} x^{\frac{1}{2}} y^{\frac{1}{2}}$

(b) $2^{\frac{3}{2}} x^{\frac{3}{2}} y^{\frac{3}{2}}$

(c) $2x^{\frac{3}{2}} y^{\frac{3}{2}}$

(d) $4x^{\frac{3}{2}} y^{\frac{3}{2}}$