**Activity 4.1.6 Review**

Simplify: Express with positive exponents.

1. $x^{25 }∙ x^{-7}$ 2. $\frac{35x^{0}y^{-4}}{30x^{-4}y^{-5}}$ 3. $(-5x^{-12}y^{13})(2x^{2}y^{4})$

4. $\frac{x^{-5.3}}{x^{-7.4}}$ 6. $x^{-3/5} ∙ x^{5/3} ∙x$ 7. $\frac{-40x^{4}y^{-2}}{5x^{-1}y^{4/3}}$

8.$ (3a^{-5/2}b^{-8/5})(-2a^{2}b^{-3/5})$ 9. $(5x^{-2/5}y^{-6})(3x^{-4/5}y)$ 10. $\frac{-60x^{-3}y^{5}z^{-8}}{-24x^{5}y^{-6}z^{-3}}$

11. Express: the 3rd power of the 7th root of x. Use radical notation for final answer.

12. Rewrite with rational exponents and simplify. Assume that the variables represent nonnegative real numbers.

a) $\sqrt[5]{x^{15}}$ b) $\sqrt[6]{y^{8}}$ c) $\sqrt[9]{m^{18}}$ d) $\sqrt[3]{p^{12}}$ e) $\sqrt[8]{9^{8}x^{32}}$ f) $\sqrt[6]{x^{4}}$

g) $\sqrt[6]{a^{2}}$ h) $(\sqrt[5]{x^{2}y^{4}})^{15}$ i) $\sqrt[6]{(xy)^{18}}$

13. Write the expression using a single radical sign. Assume that the variables represent nonnegative real numbers.

a) $(x^{\frac{2}{3}})( x^{\frac{3}{4}})$ b) $(x^{\frac{3}{4}})(x^{\frac{1}{8}})$ c) $(y^{\frac{1}{6}})(y^{\frac{3}{4}})$

14. Use rational exponents to simplify. Assume that the variables represent nonnegative real numbers. Write the final answer as a radical.

1. $\sqrt[12]{a^{8}}$ b) $\sqrt[10]{a^{6}}$ c) $\sqrt[14]{a^{6}}$ d) $\sqrt[10]{(3a)^{5}}$

15. Show that if x ≥ 0, $\sqrt[12]{a^{2}}$ = $\sqrt[18]{a^{3}}$

16. Show that $ \left(x^{8}+25\right)^{.5}\ne x^{4}+5$