Algebra II Name _____

Exponents #4

Simplify the following.

1. $\left(9^{2}\right)^{\frac{1}{3}}$

2. $\dfrac{6}{6^{\frac{1}{4}}}$

3. $\left(\dfrac{8^{4}}{10^{4}}\right)^{-\frac{1}{4}}$

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

5. $\dfrac{2^{\frac{2}{3}} \cdot 16^{\frac{2}{3}}}{4^{\frac{2}{3}}}$

6. $\left(x^{\frac{1}{2}} y^{-\frac{2}{3}}\right)^{-6}$

7. $\left(\dfrac{x^{3}}{x^{-1}}\right)^{-\frac{1}{4}}$

8. $\left(\dfrac{x^{-\frac{2}{3}}}{y^{-\frac{1}{3}}}\right)^{15}$

9. $\dfrac{x^{\frac{2}{3}} y^{-\frac{1}{4}}}{x^{\frac{1}{2}} y^{-\frac{1}{2}}}$

10. $\left(\dfrac{8x^{6}}{27y^{9}}\right)^{\frac{1}{3}}$

11. $\left(u^{\frac{1}{2}} - 2v^{\frac{1}{2}}\right)\left(3u^{\frac{1}{2}} + v^{\frac{1}{2}}\right)$

12. If $\sqrt[4]{\sqrt{(x-5)^{7}}} = (x-5)^{a} \quad for\ x \geq 5$

and a is a constant, what is the value of a?

13. Solve the equation $\dfrac{x+3}{x-1} = \dfrac{2x+5}{x-4}$ If it's quadratic and you can't factor it...think of another obvious way!!!