FMP 10 **LG 8 & 9** **Roots and Powers**

Date _____ **Name _____**

Worksheet #2 - Exponent Laws

Simplify the following problems as much as possible so that your answer uses only *positive* exponents.

1. $\frac{(kn)^{-5}}{v^2}$

2. $(x^2y^3)^0$

3. $\frac{32^{-1}}{8^{-1}}$

4. $\frac{-3^{-2}b^2}{a^0b^{-3}}$

5. $\frac{5x^2y^{-3}}{a^{-3}b^4}$

6. $(2x^2y^3)(-5x^{-2}y^7)$

7. $(2acd)^3(3cda)$

8. $\frac{1}{(2y^2z)^{-3}}$

9. $\left(\frac{2vq^6}{qv^3}\right)^{-2}$

10. $\frac{(5a^2)(6p^3)}{(2a^3)(5^{-1}p)^{-2}}$

11. $\left(\frac{4x}{2x^5}\right)^3$

12. $(-k^{-4}m^7)(3k^5m^{-1})(2k^{-2}m)$

13. $(-zy^{-3})^2(4z^6y^9)^{-2}$

14. $\frac{5^{-2}t^4u^{-3}}{t^{-7}u^6}$

For the following problems, use what you know about *rational exponents* to simplify as much as possible and/or find the value of each root.

15. $4^{\frac{5}{2}}$

16. $(-125)^{\frac{2}{3}}$

17. $625^{\frac{1}{5}}$

18. $\left(\frac{1}{8}\right)^{\frac{1}{3}}$

19. $\left(x^{\frac{1}{4}}\right)^8$

20. $(16a^4b^{12}c^{18}d^6)^{\frac{1}{4}}$

21. $ab^{\frac{1}{2}}a^4b^{\frac{1}{6}}$

22. $\frac{x^{\frac{1}{2}}y^{-2}z^4}{x^{\frac{3}{2}}y^3z^{\frac{3}{2}}}$