Name _____ Date _____

Practice 14

For use with Section 2-6

Simplify. Write answers with positive exponents.

1. $5x^{-2}y^{-3}$

2. $-12a^0b^{-1}c^2$

3. $\frac{3 + k^0}{m^{-5}}$

4. $\frac{w^{-3}}{10u^0v^{-2}}$

5. $\frac{2^{-1}p^0}{q^{-4}r}$

6. $(-6n^2)(3^{-2}r^{-3})$

7. $(5j^3k^0)(-3v^{-5})$

8. $\frac{3^{-2}y^0}{z^0}$

Rewrite each expression using fractional exponents.

9. $\sqrt{3ab}$

10. $-6\sqrt[3]{c}$

11. $m\sqrt{5fg}$

12. $\sqrt[3]{u} \cdot \sqrt[3]{2v}$

13. $-4\sqrt{7a}$

14. $9\sqrt[3]{x} \cdot \sqrt[3]{y}$

15. $-2\sqrt{\frac{3}{r}}$

16. $\sqrt[3]{\frac{1}{5b}}$

17. $\sqrt[3]{x + y}$

Rewrite each expression in radical form.

18. $-9c^{1/2}$

19. $\frac{1}{2}v^{1/3}$

20. $(3pq)^{1/2}$

21. $(2a^{1/3})b^{1/2}$

22. $\frac{7}{(4h)^{1/3}}$

23. $\frac{(5y)^{1/3}}{3z^{1/2}}$

24. $\left(\frac{n^3}{5t}\right)^{1/2}$

25. $(8m)^{1/3}\frac{1}{d^{1/2}}$

26. $\frac{2x^{1/3}}{y^{1/2}}$

27. Suppose you dropped a dime from the top of New York City's Empire State Building, which is 1250 ft tall. The speed v (in ft/s) of the dime after it has fallen a distance d (in ft) will be given by the formula $v = 8\sqrt{d}$ (if air resistance is neglected). How fast would the dime be traveling by the time it reaches the street? Round your answer to the nearest mile per hour. (Hint: 1 ft/s is about 0.68 mi/h.)

28. The distance d (in ft) from a movie projector to the screen is related to the area A (in ft^2) of the projected image by the equation $d = k\sqrt{A}$, where k is a constant. Suppose $k = 4.2$ and you want the image to have an area of 500 ft^2. How far away from the screen must the projector be? Round your answer to the nearest tenth of a foot.

29. ***Writing*** What do you think $x^{-1/2}$ means? Explain your guess on the basis of your knowledge of what $x^{1/2}$ means and what x^{-2} means.