NAME _____ DATE _____ PERIOD _____

7-3 Extra Practice Rational Exponents

Write each expression in radical form, or write each radical in exponential form.

1. $(8x)^{\frac{1}{2}}$ $\sqrt{8x}$

2. $6z^{\frac{1}{2}}$ $6\sqrt{z}$

3. $\sqrt{19}$ $19^{\frac{1}{2}}$

4. $\sqrt{11}$ $11^{\frac{1}{2}}$

5. $19x^{\frac{1}{2}}$ $19\sqrt{x}$

6. $\sqrt{34}$ $34^{\frac{1}{2}}$

7. $\sqrt{27g}$ $(27g)^{\frac{1}{2}}$

8. $33gh^{\frac{1}{2}}$ $33g\sqrt{h}$

9. $\sqrt{13abc}$ $(13abc)^{\frac{1}{2}}$

Simplify.

10. $\left(\frac{1}{16}\right)^{\frac{1}{4}}$ $\frac{1}{2}$

11. $\sqrt[5]{3125}$ 5

12. $729^{\frac{1}{3}}$ 9

13. $\left(\frac{1}{32}\right)^{\frac{1}{5}}$ $\frac{1}{2}$

14. $\sqrt[6]{4096}$ 4

15. $1024^{\frac{1}{5}}$ 4

16. $\left(\frac{16}{625}\right)^{\frac{1}{4}}$ $\frac{2}{5}$

17. $\sqrt[6]{15{,}625}$ 5

18. $117{,}649^{\frac{1}{6}}$ 7

Solve each equation.

19. $2^x = 512$ 9

20. $3^x = 6561$ 8

21. $6^x = 46{,}656$ 6

22. $5^x = 125$ 3

23. $3^{x-3} = 243$ 8

24. $4^{x-1} = 1024$ 6

25. $6^{x-1} = 1296$ 5

26. $2^{4x+3} = 2048$ 2

27. $3^{3x+3} = 6561$ $\frac{5}{3}$