Radical Practice (Sections 7.1-7.5)

Evaluate each expression.

1. $\sqrt[3]{-27}$

2. $\sqrt[4]{16}$

3. $\sqrt{-81}$

4. $8^{\frac{4}{3}}$

5. $\sqrt{(-37)^2}$

6. $16^{\frac{3}{4}}$

7. $27^{\frac{2}{3}}$

8. $\sqrt[3]{64}$

Simplify each expression. Assume that all variables and radicands represent positive real numbers.

9. $\dfrac{\sqrt{98}}{\sqrt{2}}$

10. $\sqrt{75}$

11. $\sqrt[3]{81}$

12. $\sqrt{48}$

13. $\sqrt{45}$

14. $\sqrt[3]{24}$

15. $\sqrt{44}$

16. $\sqrt{200}$

17. $\sqrt[3]{16x^8y^5}$

18. $\sqrt{8x^4y^7}$

19. $\sqrt{5}+\sqrt{11}$

20. $\sqrt{18}+\sqrt{8}$

21. $\sqrt{6}\sqrt{3}$

22. $\sqrt{5}\left(\sqrt{5}-\sqrt{3}\right)$

23. $\left(3-\sqrt{3}\right)\left(3+\sqrt{3}\right)$

24. $\dfrac{6}{\sqrt{3}}$

25. $\dfrac{7}{\sqrt[4]{27}}$

26. $\dfrac{5}{3-\sqrt{2}}$

Solutions: 1. -3 **2.** 2 **3.** not a real number **4.** 16 **5.** 37 **6.** 8 **7.** 9 **8.** 4 **9.** 7 **10.** $5\sqrt{3}$ **11.** $3\sqrt[3]{3}$ **12.** $4\sqrt{3}$ **13.** $3\sqrt{5}$ **14.** $2\sqrt[3]{3}$ **15.** $2\sqrt{11}$ **16.** $10\sqrt{2}$ **17.** $2x^2y\sqrt[3]{2x^2y^2}$ **18.** $2x^2y^3\sqrt{2y}$ **19.** simplified **20.** $5\sqrt{2}$ **21.** $3\sqrt{2}$ **22.** $5-\sqrt{15}$ **23.** 6 **24.** $2\sqrt{3}$ **25.** $\dfrac{7\sqrt[4]{3}}{3}$ **26.** $\dfrac{15+5\sqrt{2}}{7}$