Name: Period:

Sec1H **Homework 6-1** **Unit 6**

Simplify Radicals

Simplify the following radical expressions.

1. $\sqrt{300}$ **2.** $\sqrt{90}$ **3.** $\sqrt{84}$ **4.** $\sqrt{60}$

5. $\sqrt{80}$ **6.** $\sqrt{108}$ **7.** $\sqrt{35}$ **8.** $\sqrt{75}$

9. $\sqrt[3]{27}$ **10.** $\sqrt[4]{16}$ **11.** $\sqrt[3]{128}$ **12.** $\sqrt[5]{32}$

Estimate the value of each radical. Do NOT use a calculator.

13. $\sqrt{21}$ **14.** $\sqrt{5}$ **15.** $\sqrt{87}$ **16.** $\sqrt{110}$

17. $\sqrt{32}$ **18.** $\sqrt{140}$ **19.** $7\sqrt{2}$ **20.** $3\sqrt{5}$

Simplify each radical. Then add and/or subtract.

21. $3\sqrt{5}+7\sqrt{5}$

22. $7\sqrt{2}-15\sqrt{2}+8\sqrt{2}$

23. $2\sqrt{12}-8\sqrt{3}$

24. $\sqrt{16}+2\sqrt{25}$

25. $9\sqrt{32}+\sqrt{2}$

26. $3\sqrt{7}-5\sqrt{14}+2\sqrt{28}$

27. $2\sqrt{6}-5\sqrt{54}$

28. $3\sqrt{7}-5\sqrt{14}+2\sqrt{28}$

29. $4\sqrt{10}+\sqrt{13}-9\sqrt{10}$

Multiply each radical, and simplify.

30. $\sqrt{25}\bullet\sqrt{100}$

31. $3\sqrt{81}\bullet\sqrt{81}$

32. $\sqrt{200}\bullet\sqrt{2}$

33. $\left(5\sqrt{7}\right)^3$

34. $\left(\sqrt{12}\right)^2$

35. $\left(8\sqrt{6}\right)^3$

36. $\left(\sqrt{2}\right)^2$

37. $5\sqrt{320}\bullet\sqrt{12}$

38. $\sqrt{12}\bullet\sqrt{4}$