Operations on Radicals (For use after Section 11–8)

Write each as a decimal rounded to the nearest hundredth.

Express in simplest form. Assume that all variables represent positive real numbers.

1. $\sqrt{6} \cdot 3\sqrt{6}$ _____

2. $\sqrt{5} \cdot \sqrt{6} \cdot \sqrt{10}$ _____

3. $2\sqrt{3} \cdot \sqrt{6}$ _____

4. $\sqrt{3} \cdot \sqrt{27}$ _____

5. $\sqrt{3} \cdot \sqrt{12} \cdot \sqrt{50}$ _____

6. $\sqrt{5} \cdot \sqrt{\dfrac{3}{5}}$ _____

7. $\sqrt{\dfrac{8}{11}} \cdot \sqrt{\dfrac{11}{8}}$ _____

8. $\sqrt{\dfrac{8}{11}} \cdot \sqrt{22}$ _____

9. $\dfrac{2\sqrt{5}}{\sqrt{50}}$ _____

10. $\dfrac{\sqrt{3}}{\sqrt{18}}$ _____

11. $\dfrac{5\sqrt{45}}{\sqrt{15}}$ _____

12. $\dfrac{3\sqrt{27}}{4\sqrt{3}}$ _____

13. $\sqrt{\dfrac{50}{4}}$ _____

14. $\dfrac{8\sqrt{405}}{\sqrt{5}}$ _____

17. $8\sqrt{5} - 3\sqrt{5}$ _____

18. $2\sqrt{6} - 3\sqrt{6}$ _____

19. $\dfrac{1}{2}\sqrt{5} + \dfrac{1}{4}\sqrt{20}$ _____

20. $\sqrt{28} - \sqrt{7}$ _____

21. $\sqrt{90} - \sqrt{40}$ _____

22. $\sqrt{8} + \sqrt{\dfrac{1}{2}}$ _____

23. $3\sqrt{28} + \sqrt{63}$ _____

24. $\sqrt{75} - 2\sqrt{27} + \sqrt{48}$ _____

25. $3\sqrt{\dfrac{9}{10}} - \sqrt{10}$ _____

26. $\sqrt{x^6} + \sqrt{x^4}$ _____

27. $3\sqrt{2}(\sqrt{8} - \sqrt{32})$ _____

28. $\sqrt{\dfrac{x^2}{a^2} - \dfrac{x^2}{b^2}}$ _____

1. $(\sqrt{3} + 4)(\sqrt{3} - 4)$ _____

2. $(8 - \sqrt{2})(8 + \sqrt{2})$ _____

3. $(\sqrt{5} + \sqrt{6})(\sqrt{5} - \sqrt{6})$ _____

4. $(\sqrt{3} - 4)^2$ _____

5. $(8 + \sqrt{2})^2$ _____

6. $(\sqrt{5} + \sqrt{6})^2$ _____

7. $(2\sqrt{3} + 4)(5\sqrt{7} + 7)$ _____

8. $2\sqrt{3}(5\sqrt{6} - 3)$ _____

9. $\dfrac{5}{\sqrt{3} + 4}$ _____

10. $\dfrac{\sqrt{5}}{\sqrt{3} - 4}$ _____

11. $\dfrac{4}{8 - \sqrt{2}}$ _____

12. $\dfrac{4}{\sqrt{2} - 8}$ _____

13. $\dfrac{6}{2\sqrt{3} + 3}$ _____

14. $\dfrac{2 + \sqrt{5}}{2 - \sqrt{5}}$ _____