Name _____ Class _____ Date _____

Practice 9-5

Mixed Exercises

Simplify each expression.

1. $3\sqrt{7} + 5\sqrt{7}$

2. $10\sqrt{4} - \sqrt{4}$

3. $4\sqrt{2}\left(2 + 2\sqrt{3}\right)$

4. $\sqrt{45} + 2\sqrt{5}$

5. $12\sqrt{11} + 7\sqrt{11}$

6. $\sqrt{2}\left(2\sqrt{3} - 4\sqrt{2}\right)$

7. $\sqrt{28} + \sqrt{63}$

8. $3\sqrt{6} - 8\sqrt{6}$

9. $\sqrt{3}\left(\sqrt{6} - \sqrt{12}\right)$

10. $\sqrt{18} - \sqrt{50}$

11. $4\sqrt{2} + 2\sqrt{8}$

12. $13\sqrt{15} - 11\sqrt{15}$

13. $3\left(8\sqrt{3} - 7\right)$

14. $8\left(2\sqrt{5} + 5\sqrt{2}\right)$

15. $17\sqrt{21} - 12\sqrt{21}$

16. $\sqrt{6}\left(7 + 3\sqrt{3}\right)$

17. $8\left(4 - 3\sqrt{2}\right)$

18. $2\sqrt{12} + 6\sqrt{27}$

19. $19\sqrt{3} + \sqrt{12}$

20. $8\sqrt{26} + 10\sqrt{26}$

21. $\sqrt{10}\left(3 - 2\sqrt{6}\right)$

22. $9\sqrt{2} - \sqrt{50}$

23. $10\sqrt{13} - 7\sqrt{13}$

24. $12\sqrt{6} - 4\sqrt{24}$

25. $5\sqrt{7} + \sqrt{28}$

26. $8\sqrt{13} - 12\sqrt{13}$

27. $13\sqrt{40} + 6\sqrt{10}$

28. $-3\sqrt{3}\left(\sqrt{6} + \sqrt{3}\right)$

29. $12\sqrt{29} - 15\sqrt{29}$

30. $10\sqrt{6} - 2\sqrt{6}$

31. $8\sqrt{3} - \sqrt{75}$

32. $3\sqrt{6}\left(2\sqrt{3} + \sqrt{6}\right)$

33. $17\sqrt{35} + 2\sqrt{35}$

34. $\sqrt{19} + 4\sqrt{19}$

35. $12\sqrt{9} - 4\sqrt{9}$

36. $\sqrt{8}\left(\sqrt{2} - 7\right)$

Solve each exercise by using the golden ratio $\left(1 + \sqrt{5}\right) : 2$.

37. The ratio of the height : width of a window is equal to the golden ratio. The width of the door is 36 in. Find the height of the door. Express your answer in simplest radical form and in inches.

38. The ratio of the length : width of a flower garden is equal to the golden ratio. The width of the garden is 14 ft. Find the length of the garden. Express your answer in simplest radical form and in feet.

39. The ratio of the width : height of the front side of a building is equal to the golden ratio. The height of the building is 40 ft. Find the width of the building. Express your answer in simplest radical form and in feet.