



Name: _____ Period: _____

2.4 Review Radicals and Rationalizing the Denominators 2019-20 (1.1.1 and 1.2.1)

Simplify each expression.

1. $\sqrt{128}$

2. $\sqrt{5} + 7\sqrt{5}$

3. $3\sqrt{15} \cdot 2\sqrt{10}$

4. Explain what “like radicals” are.

5. Timmy and Tommy can't agree on the right answer to a homework problem. Their work is below. Decide who is right and explain why the other person got the answer wrong.

Timmy:
 $\sqrt{9} + \sqrt{16} = 3 + 4 = 7$

Tommy:
 $\sqrt{9} + \sqrt{16} = \sqrt{25} = 5$

Simplify each expression.

6. $\sqrt{36+64}$

7. $\sqrt{36} + \sqrt{64}$

8. $\sqrt{3} + \sqrt{75} - \sqrt{63}$

9. $5\sqrt{80} - 2\sqrt{45}$

10. $\sqrt[3]{10} - \sqrt[3]{56} + \sqrt[3]{270}$

11. $\sqrt{3} + \sqrt[3]{24} + \sqrt[3]{16}$

12. $4\sqrt[3]{7} - 2\sqrt[3]{56} + 2\sqrt[3]{3}$

13. $5\sqrt[4]{128} - 5\sqrt[4]{8} - 4\sqrt[4]{48}$

14. $-3\sqrt{8} - \sqrt{72} - 2\sqrt{2} - 3\sqrt{5}$

15. $2\sqrt{12} + 3\sqrt[3]{2} - 4\sqrt{125} + 5\sqrt[3]{54}$

Simplify by combining like terms.

16. $(7\sqrt{2}x^2 - 3\sqrt{5}x) + (2\sqrt{2}x^2 + 4\sqrt{5}x)$

17. $(\sqrt{63}x - \sqrt{49}) + (\sqrt{28}x - \sqrt{25})$

Use the distributive property to simplify.

18. $5(8x+3)$

19. $9(x+2)$

20. $-(5x+14)$

Multiply. Don't forget to simplify all your answers as much as possible.

21. $\sqrt{2}(5+\sqrt{2})$

22. $3\sqrt{5}(\sqrt{6}-\sqrt{7})$

23. $\sqrt{2}(3\sqrt{10}-\sqrt{8})$

24. $\sqrt[3]{3}(\sqrt[3]{9}-4\sqrt[3]{10})$

25. $(2+\sqrt{6})(5-\sqrt{6})$

26. $(2\sqrt{2}+\sqrt{7})(3\sqrt{3}-\sqrt{5})$

27. $(3+\sqrt{11})(3-\sqrt{11})$

28. $(2+3\sqrt{5})(2-3\sqrt{5})$

29. $(4+\sqrt{7})^2$

30. $(5-2\sqrt{10})^2$

Simplify each expression.

31. $\frac{2}{\sqrt{5}}$

32. $\frac{4\sqrt{7}}{\sqrt{5}}$

33. $\frac{2\sqrt{5}}{\sqrt{8}}$

34. $\frac{6\sqrt{2}}{\sqrt{4}}$

35. $\frac{10\sqrt{3}}{\sqrt{5}}$

36. $\frac{2\sqrt{3}+5}{\sqrt{6}}$

Find the conjugate.

37. $\sqrt{x}-3$

38. $3+5\sqrt{2}$

39. $-7-5\sqrt{3}$

Simplify each expression.

40. $\frac{\sqrt{3}}{\sqrt{5}-2}$

41. $\frac{\sqrt{5}}{4+\sqrt{3}}$

42. $\frac{4}{-4-\sqrt{5}}$

43. $\frac{-3+\sqrt{3}}{2+\sqrt{5}}$

44. $\frac{-5+\sqrt{3}}{\sqrt{3}-4}$

45. $\frac{3-\sqrt{5}}{3-\sqrt{5}}$

Simplify each expression.

46. $5\sqrt{80}-2\sqrt{45}$

47. $3\sqrt{5}(\sqrt{6}-\sqrt{7})$

48. $(2\sqrt{2}+\sqrt{7})(3\sqrt{3}-\sqrt{5})$

Review

49. $7x^5 \cdot x^3$

50. $x^{-2} \cdot 5x$

51. $(x^{-3})^4$

52. $x \cdot x$

53. $x+x$