

ALGEBRA II REVIEW CHAPTERS 10 TO 13**RATIONAL FUNCTIONS – SEQUENCES & SERIES**

Simplify each radical expression. Use absolute value symbols as needed.

1. $\sqrt{36x^4}$

2. $\sqrt{c^{80}d^{50}}$

3. $\sqrt[4]{81x^{12}}$

4. $\sqrt[3]{-64}$

5. $\sqrt[5]{-32k^5}$

6. $\sqrt[4]{\frac{1}{16}w^{12}}$

7. $\sqrt[4]{m^{18}n^8}$

8. $\sqrt[3]{27y^{15}}$

9. $\sqrt[5]{-243r^{20}}$

Multiply or divide and simplify. Assume that all variables are positive.

10. $\sqrt{3x^4} \cdot \sqrt{24x^3}$

11. $\sqrt[3]{4} \cdot \sqrt[3]{18}$

12. $\sqrt{5a^3} \cdot \sqrt{20a}$

13. $\frac{\sqrt{80}}{\sqrt{5}}$

14. $\frac{\sqrt{18x^5y}}{\sqrt{2x}}$

15. $\frac{\sqrt[3]{640w^3z^8}}{\sqrt[3]{5wz^4}}$

Simplify.

16. $2\sqrt{7} + 3\sqrt{7}$

17. $\sqrt{32} + \sqrt{8}$

18. $\sqrt{7x} + \sqrt{28x}$

19. $3\sqrt{18} + 2\sqrt{72}$

20. $\sqrt{27} + \sqrt{48}$

21. $8\sqrt{45} - 3\sqrt{80}$

Write each expression in simplest form. Assume that all variables are positive.

22. $81^{\frac{1}{2}}$

23. $36^{\frac{1}{4}} \cdot 36^{\frac{1}{4}}$

24. $\left(x^{\frac{4}{3}}y^{\frac{3}{5}}\right)^{15}$

25. $\left(x^{\frac{1}{4}}y^{\frac{3}{8}}\right)^{16}$

26. $(8x^{15}y - 9)^{\frac{1}{3}}$

27. $(-27x^{-9}y^6)^{\frac{1}{3}}$

Solve. Check for extraneous solutions.

28. $\sqrt{13x-10} = 3x$

29. $\sqrt{x+20} = x$

30. $(4x-12)^{\frac{1}{2}} + 3 = x$

31. $(7x)^{\frac{1}{3}} = (5x+2)^{\frac{1}{3}}$

32. $\sqrt{x-2} - \sqrt{2x+3} = -2$

33. $\sqrt{10x} - 2\sqrt{5x-25} = 0$

ALGEBRA II REVIEW CHAPTERS 10 TO 13

Find the arithmetic mean a_n of the given terms.

34. $a_{n-1} = 10, a_{n+1} = 20$

35. $a_{n-1} = 7, a_{n+1} = 19$

36. $a_{n-1} = -2, a_{n+1} = -7$

30. a. Find the common difference for the arithmetic sequence that has 17 as its twelfth term and 71 as its sixth term.

b. Write the explicit formula for the sequence.

Find the eighth term of each geometric sequence.

37. $2, 6, 18, \dots$

38. $-7, 21, -63, \dots$

39. $\frac{1}{12}, \frac{1}{2}, 3, \dots$

Write an explicit formula for each geometric sequence. Then generate the first five terms.

40. $a_1 = 6, r = 2$

41. $a_1 = -27, r = \frac{1}{3}$

42. $a_1 = 1900, r = 0.1$

43. $a_1 = -5, r = 3$

44. $a_1 = 1, r = 4$

45. $a_1 = 500, r = 0.2$

46. A fruit fly receives genetic material from two parents. Each parent also receives genetic material from 2 parents. So each fruit fly receives genes from 4 grandparents, 8 great-grandparents, and so on. How many ancestors does a fruit fly have going back 15 generations?

Lesson 9-4

Find the sum of each finite arithmetic series.

47. $3 + 5 + 7 + 9 + 11$

48. $13 + 9 + 5 + 1 + (-3)$

49. $4 + 11 + 18 + \dots + 53$

50. $(-2) + 3 + 8 + \dots + 23$

51. $\frac{1}{2} + \frac{3}{2} + \frac{5}{2} + \dots + \frac{11}{2}$

52. $(-5) + (-1) + 3 + \dots + 15$