

11-2 Exponential Functions

7. The function $f(x) = 2500(0.5)^x$, where x is the time in years, models the number of gaming systems sold to students at a middle school. How many gaming systems will be sold in 4 years?

Graph each exponential function.

8. $y = 6(2)^x$

9. $y = -5(0.5)^x$

10. $y = -\frac{1}{2}(2)^x$

11-3 Exponential Growth and Decay

Write a function to model each situation. Then find the value of the function after the given amount of time.

11. Ed invested \$5000 for college tuition and he expects to receive 5% interest annually; 5 years.
12. A \$1600 computer is losing value at a rate of 10% per year; 3 years.
13. \$3500 is invested at a rate of 5.5% compounded quarterly; 4 years.
14. Francium-233 has a half-life of approximately 22 minutes. Find the amount of francium-233 left from an 88-gram sample after 54 minutes.

11-6 Radical Expressions

Simplify. All variables represent nonnegative numbers.

24. $\sqrt{108}$

25. $\sqrt{\frac{324}{4}}$

26. $-\sqrt{25a^4b^6}$

27. $\sqrt{\frac{72}{49}}$

28. $\sqrt{\frac{16a^6}{b^4}}$

29. $\sqrt{\frac{98a^4b^4}{48b}}$

11-7 Adding and Subtracting Radical Expressions

Simplify each expression.

31. $2\sqrt{3} + 5\sqrt{3}$

~~32. $2\sqrt{7a} - 5\sqrt{63a}$~~

33. $5\sqrt{3} + 2\sqrt{75}$

~~34. $4\sqrt{8} + 3\sqrt{2}$~~

35. $5\sqrt{8} - 3\sqrt{18} + \sqrt{3}$

~~36. $2\sqrt{20} + 3\sqrt{5}$~~

11-8 Multiplying and Dividing Radical Expressions

Note

Multiply. Write each product in simplest form.

37. $\sqrt{3}\sqrt{5}$

~~38. $2\sqrt{18}(3\sqrt{8})$~~

39. $2\sqrt{6}(3\sqrt{7})$

40. $(2\sqrt{5})^2$

~~41. $(6 - \sqrt{2})(6 + \sqrt{2})$~~

42. $(\sqrt{a} - 5)(3\sqrt{a} + 7)$

Simplify each quotient.

43. $\frac{\sqrt{6}}{\sqrt{3}}$

44. $\frac{4}{2\sqrt{3}}$

45. $\frac{\sqrt{50}}{\sqrt{y^2}}$

~~46. $\frac{6\sqrt{10}}{8\sqrt{2}}$~~

47. $\frac{-12\sqrt{24}}{3\sqrt{2}}$

~~48. $\frac{\sqrt{5x}}{\sqrt{x}}$~~

11-9 Solving Radical Equations

Solve each equation. Check your answer.

49. $\sqrt{x} = 5$

50. $\sqrt{2x} - 4 = 2$

51. $\sqrt{x+7} = 10$

52. $\frac{\sqrt{x}}{4} = 5$

~~53. $\sqrt{x+5} = \sqrt{x} + 1$~~

~~54. $\sqrt{7-x} + \sqrt{x+1} = 6$~~