

Chapter 4: Exponential and Logarithmic Functions

Know How to.....

- Graph Exponential ($y = 2^x$) and Log ($y = \log_3 x$) Functions
 - Asymptotes and Domain and Range
- Value of e
- Simplify exponents: know rules
- Interest Compounded continuously: $A = Pe^{rt}$
- Evaluate logs
- Expand logs/Condense logs
- Change of Base
- Solve Exponential Equations/ Solve Log Equations

Chapter 5: Rational Functions

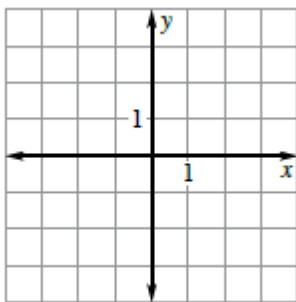
- Inverse Variation
- Graph: list Vertical Asymptote, Horizontal Asymptote
- Add, Subtract, Multiply, Divide Fractions
- Solve equations with fractions
- Determine if function is odd or even

Chapter 9: Trigonometric Functions

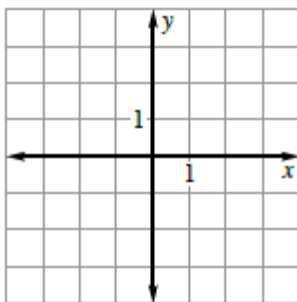
- Evaluate 6 trig functions
- Solve triangles using trig
- Trig functions of special angles
- Find the angle using inverse
- Law of Sines
- Law of Cosines

CH 4: Graph the function. State the domain and range

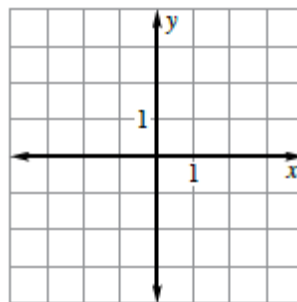
1. $y = 3 \cdot 2^{x-3}$



2. $y = \left(\frac{3}{4}\right)^x$



3. $y = e^x$



Simplify the expression.

4. $4e^3 \cdot e^5$

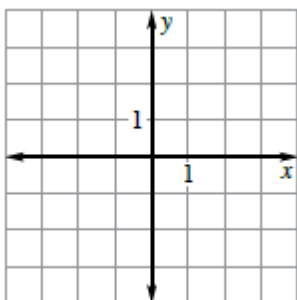
5. $(-4e^{2x})^3$

6. $\frac{e^{5x}}{4e^2}$

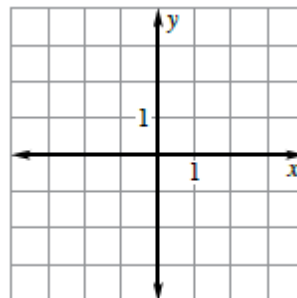
7. $\frac{9e^{6x}}{3e^{4x}}$

Graph the function. State the domain and range.

8. $y = 3e^x$



9. $y = 2e^{-4x}$



10. You deposit \$3000 in an account that pays 5% annual interest compounded continuously. What is the balance after 2 years?

Evaluate the logarithm without using a calculator.

11. $\log_2 8$

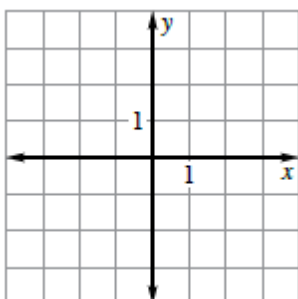
12. $\log_6 1$

13. $\log_5 5$

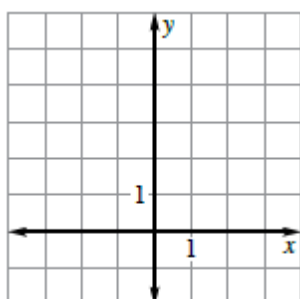
14. $\log_{1/3} 27$

Graph the function. State the domain and range.

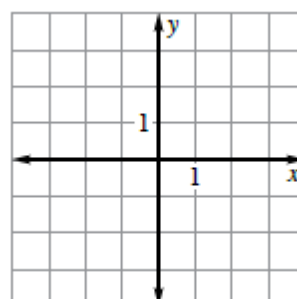
15. $y = \log_5 x$



16. $y = \ln x + 3$



17. $y = \log(x + 1) - 2$



Expand the expression.

18. $\log_3 4x$

19. $\ln 4x^2y^5$

Condense the expression.

20. $\log_5 24 - \log_5 6$

21. $\log_8 6 + 2 \log_8 3$

Use the change-of-base formula to evaluate the logarithm.

22. $\log_4 12$

23. $\log_9 18$

Solve the equation.

24. $3^{x+1} = 27^{x+3}$

25. $e^x = 5$

26. $2^{3x} + 9 = 25$

27. $4^{x+1} - 7 = 14$

28. $\log_6(5x + 8) = \log_6(13x)$

29. $\ln(4x - 2) = \ln(8x)$

30. $9 \ln x = 54$

31. $\log_3(x + 7) = 3$

Chapter 5: Rational Functions

The variables x and y vary inversely. Use the given values to write an equation relating x and y .

Then, find y when $x = -2$.

32. $x = 7, y = 2$

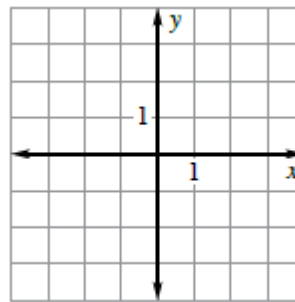
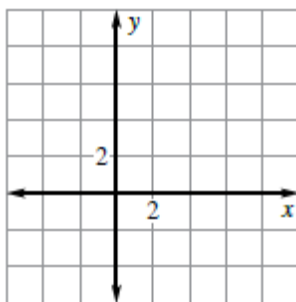
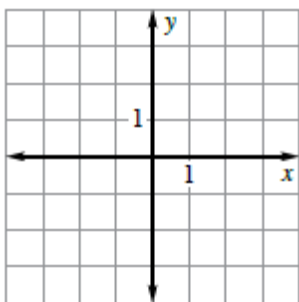
33. $x = 3, y = -8$

Graph the function.

34. $y = \frac{5}{4x}$

35. $y = \frac{5}{x-3} + 1$

36. $y = \frac{3x}{4x+1}$



Perform the indicated operation and simplify.

37. $\frac{x^2 - 2x - 15}{x^2 + x - 12} \cdot \frac{2x^2 - 6x}{x^3 + 3x^2}$

38. $\frac{x^2 - 10x + 21}{x^2 - 4} \cdot \frac{x - 2}{x - 7}$

39. $\frac{x^2 + 8x + 12}{x^2 - 4} \div \frac{x^2 + 10x + 24}{x^2 + x - 6}$

Perform the indicated operation and simplify.

40. $\frac{1}{x+3} + \frac{1}{x-3}$

41. $\frac{4}{x-4} - \frac{3}{x+2}$

42. $\frac{5x+4}{x^2-64} + \frac{3}{x-8}$

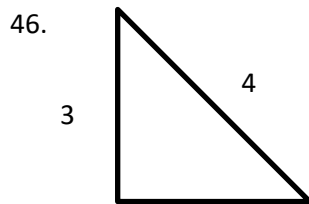
Solve the equation.

43. $\frac{x-3}{x-2} = \frac{9}{x+6}$

44. $\frac{x-6}{x-4} - \frac{3x-2}{x-4} = 4$

45. $\frac{3x+9}{x^2-9} = \frac{2x+7}{x-3}$

CH 9: Evaluate the six trig functions of angle θ .



47. $\sin \theta = \frac{6}{11}$

48. Solve *right* $\triangle ABC$, if $B = 23^\circ$ and $a = 12$.

49. Solve if $\cos \theta = .23$ and $90 < \theta < 180$

50. Solve $\sin^{-1} \frac{\sqrt{2}}{2}$

51. Solve $\triangle ABC$ if $A = 107^\circ$, $B = 25^\circ$ and $b = 15$

52. $a = 12$, $b = 27$, and $c = 2$

