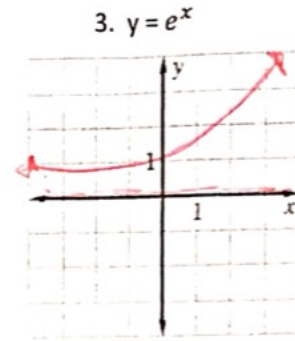
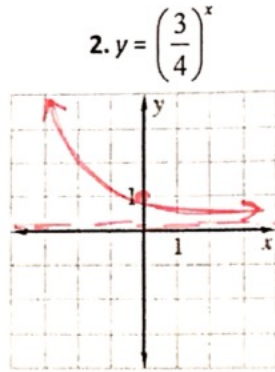
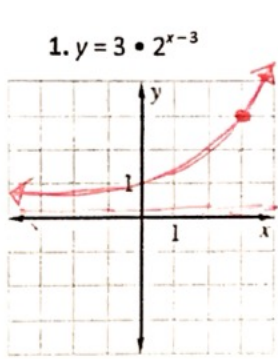


Chapter 4: Graph the function. State the domain and range



Simplify the expression.

4. $4e^3 \cdot e^5$
 $4e^8$

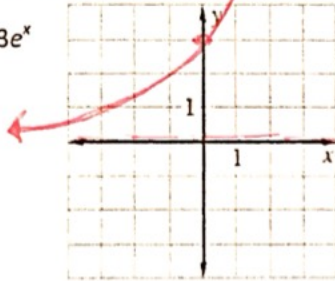
5. $(-4e^{2x})^3$
 $-64e^{6x}$

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

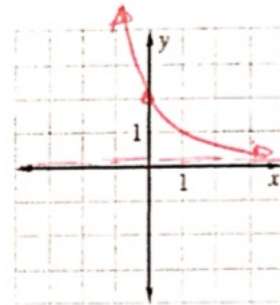
7. $\frac{9e^{6x}}{3e^{4x}}$
 $3e^{2x}$

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?

$A = \$3315.51$

Evaluate the logarithm without using a calculator.

11. $\log_2 8$ 3

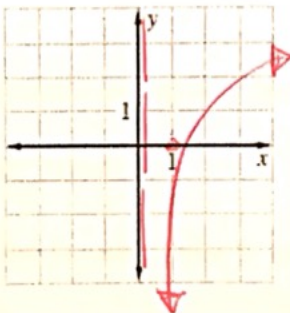
12. $\log_6 1$ 0

13. $\log_5 5$ 1

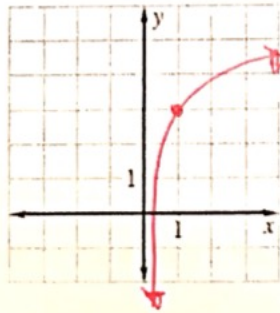
14. $\log_{1/3} 27$ -3

Graph the function. State the domain and range.

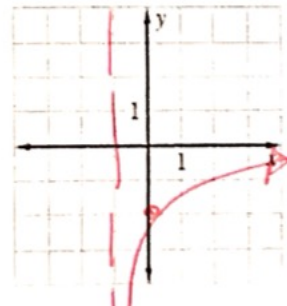
15. $y = \log_5 x$



16. $y = \ln x + 3$



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



Expand the expression.

18. $\log_3 4x$

$\log_3 4 + \log_3 x$

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

$\ln 4 + 2\ln x + 5\ln y$

Condense the expression.

20. $\log_5 24 - \log_5 6$

$\log_5 4$

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

$\log_8 54$

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

22. $\log_4 12$ *1.79*

23. $\log_9 18$ *1.32*

Solve the equation.

24. $3^{x+1} = 27^{x+3}$
-4

25. $e^x = 5$
1.6

26. $2^{3x} + 9 = 25$ *4/3*

27. $4^{x+1} - 7 = 14$ *1.2*

28. $\log_6 (5x + 8) = \log_6 (13x)$
1

29. $\ln (4x - 2) = \ln (8x)$
-1/2

30. $9 \ln x = 54$
403

31. $\log_3 (x + 7) = 3$
20

Chapter 5: 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. $x = 7, y = 2$
 $y = \frac{14}{x}, -7$

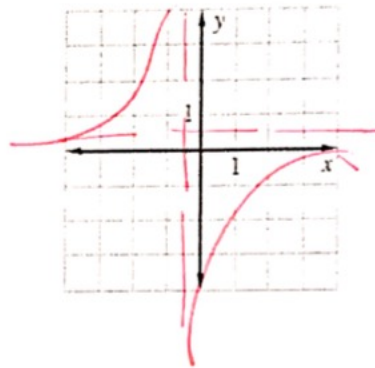
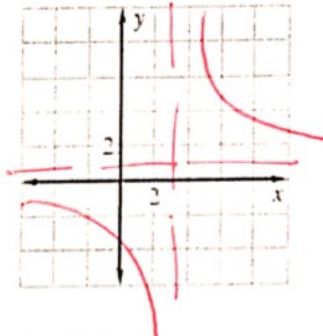
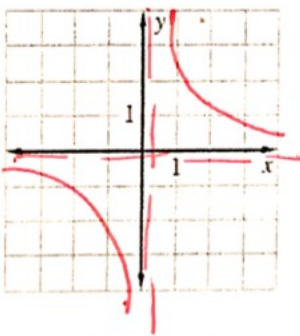
33. $x = 3, y = -8$
 $y = \frac{-24}{x}, 12$

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. $\frac{x^2 - 2x - 15}{x^2 + x - 12} \cdot \frac{2x^2 - 6x}{x^3 + 3x^2}$
 $\frac{2(x-5)}{x(x+4)}$

38. $\frac{x^2 - 10x + 21}{x^2 - 4} \cdot \frac{x-2}{x-7}$
 $x-3/x+2$

39. $\frac{x^2 + 8x + 12}{x^2 - 4} \div \frac{x^2 + 10x + 24}{x^2 + x - 6}$
 $\frac{x+3}{x+4}$

Perform the indicated operation and simplify.

40. $\frac{1}{x+3} + \frac{1}{x-3}$
 $\frac{2x}{(x+3)(x-3)}$

41. $\frac{4}{x-4} - \frac{3}{x+2}$
 $\frac{x+20}{(x-4)(x+2)}$

42. $\frac{5x+4}{x^2-64} + \frac{3}{x-8}$
 $\frac{8x+28}{(x+8)(x-8)}$

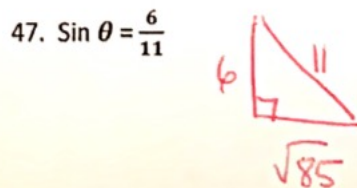
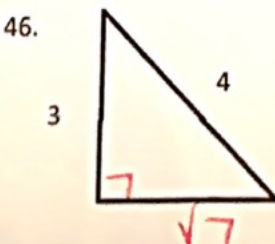
Solve the equation.

43. $\frac{x-3}{x-2} = \frac{9}{x+6}$
0, 6

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

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

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



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

$$A = 67^\circ \quad C = 13.04$$

$$C = 90^\circ \quad b = 5.1$$

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

$$\theta = 76.7 \quad \theta = 103.3$$

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

$$45^\circ \quad \pi/4$$

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

$$C = 26.4 \quad C = 48^\circ$$

$$a = 33.9$$

52. $a = 12$, $b = 27$, and $c = 20$

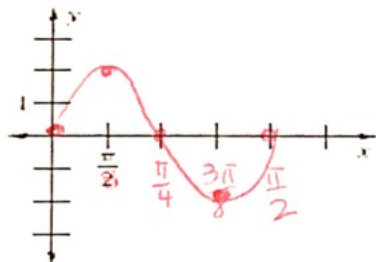
$$A = 24.2^\circ \quad B = 112.7^\circ \quad C = 4.3.1^\circ$$

Chapter 10: Trig Graphs, Identities, and Equations

Graph the Functions. Label the x-axis.

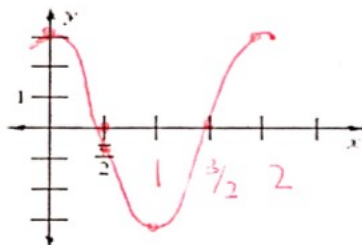
53. $y = 2 \sin 4x$

$$P = \frac{\pi}{2}$$



54. $y = 3 \cos \pi x$

$$P = 2$$



Simplify the Expression.

55. $\frac{\cos(\theta)}{\cot(\theta)}$

$$+\sin \theta$$

56. $\cos^2 x + \sin^2 x + \tan^2 x$

$$1 + \tan^2 x$$

Solve the equation in the interval $0 < x < 2\pi$

57. $3 \tan^2 x = 1$

$$\pi/6, 5\pi/6, 7\pi/6, 11\pi/6$$

Find the exact value if: $\sin(a - b) = \sin a \cos b - \cos a \sin b$

58. $\sin 15^\circ$

$$\frac{\sqrt{6} - \sqrt{2}}{4}$$