AUC AP Calculus AB

Assignment 48.

The deadline for all homework assignments is the one specified in Archie before 11:59 pm. Show all your work and justifications.

In Exercises 43–46, find an equation of the tangent line to the graph of the logarithmic function at the point (1, 0).

43. $y = \ln x^3$

44. $y = \ln x^{3/2}$

45. $y = \ln x^4$

46. $y = \ln x^{1/2}$

In Exercises 47–76, find the derivative of the function.

47. $f(x) = \ln(3x)$

48. $f(x) = \ln(x - 1)$

49. $g(x) = \ln x^2$

50. $h(x) = \ln(2x^2 + 1)$

51. $y = (\ln x)^4$

52. $y = x^2 \ln x$

69. $y = \ln|\sin x|$

70. $y = \ln|\csc x|$

71. $y = \ln\left|\dfrac{\cos x}{\cos x - 1}\right|$

72. $y = \ln|\sec x + \tan x|$

73. $y = \ln\left|\dfrac{-1 + \sin x}{2 + \sin x}\right|$

74. $y = \ln\sqrt{2 + \cos^2 x}$

75. $f(x) = \displaystyle\int_2^{\ln(2x)} (t + 1)\, dt$

76. $g(x) = \displaystyle\int_1^{\ln x} (t^2 + 3)\, dt$