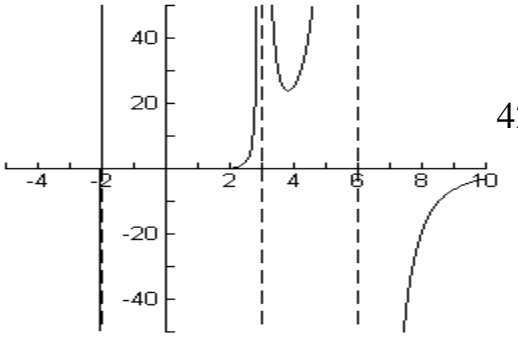
AB Calculus Test #5 (41-50) Review Answers

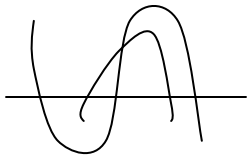
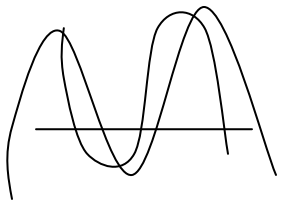
41. 

42. A) $\frac{dy}{dx} = \frac{2x+3}{\ln x} - \frac{x^2+3x+2}{x(\ln x)^2}$

B) $\frac{dy}{dx} = \frac{\cos x}{x} - \frac{\sin x}{x^2}$

43. $\frac{20}{3}$

44. A) $\frac{dy}{dx} = \frac{-e^{\frac{1}{\sqrt{x}}}}{2\sqrt{x^3}}$ B) 1 (by recognition!) C) 6x - 4

45. 


46. $\frac{dA}{dt} = -\frac{3}{2}\frac{in^2}{\sec}$

47. A) $A = \frac{232}{3}$ B) $A = e^3 - e + \ln 9 \approx 19.5645$

48. A) The derivative of the sine of an angle is the cosine of that angle.
The derivative of the cosine of an angle is the negative sine of that angle.
The derivative of the tangent of an angle is the square of the secant of that angle.
The derivative of the cotangent of an angle is the negative square of the cosecant of that angle.
The derivative of the secant of an angle is the product of the secant of that angle times the tangent of that angle.
The derivative of the cosecant of an angle is the negative of the product of the cosecant of that angle times the cotangent of that angle.

B) $\frac{dy}{dx} = \cos x$ because $\left(\frac{\tan x}{\sec x} = \frac{\frac{\sin x}{\cos x}}{\frac{1}{\cos x}} = \sin x \right)$

49. A)  B)  C)  D) 

E) max (-2.5295,83.8839) min (1.7792, -37.2902)

50. A) $\frac{dy}{dx} = \left(e^{\sin\left(x^2+3x-4\right)} \right)\left(cox\left(x^2+3x-4\right)\right)\left(2x+3\right)$

B) $\frac{dy}{dx} = 2e^{2x}\left(x^2+2\right)^{49}\left(x^2+50x+2\right)$