Due: Thu Sep 25 2014 11:59 PM EDT

Question 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

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1. Question Details SCalcET6 3.3.001. [1816609]

Differentiate.

$f(x) = 5x^9 - 3\cos x$

$f'(x) =$ $45x^8 + 3\sin(x)$

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2. Question Details SCalcET6 3.3.002. [1817268]

Differentiate.

$f(x) = 5\sqrt{x}\sin x$

$f'(x) =$ $5\sqrt{x}\cos(x) + \dfrac{5\sin(x)}{2\sqrt{x}}$

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3. Question Details SCalcET6 3.3.003. [1816973]

Differentiate.

$f(x) = \sin x + \dfrac{6}{5}\cot x$

$f'(x) =$ $\cos(x) - \dfrac{6}{5}\csc^2(x)$

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4. Question Details SCalcET6 3.3.004.MI. [1816886]

Differentiate the following function.

$y = 5\csc x + 5\cos x$

$y' =$ $-5\csc(x)\cot(x) - 5\sin(x)$

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5. Question Details SCalcET6 3.3.005. [1816641]

Differentiate the following function.

$g(t) = 3t^3\cos t$

$g'(t) =$ $9t^2\cos(t) - 3t^3\sin(t)$

6. Question Details SCalcET6 3.3.006. [1816629]

Differentiate the following function.

$g(t) = 8 \sec t + 9 \tan t$

$g'(t) =$ $8\sec(t)\tan(t) + 9\sec^2(t)$

7. Question Details SCalcET6 3.3.007. [1817203]

Differentiate the following function.

$h(\theta) = 6 \sec \theta + 4e^{\theta} \tan \theta$

$h'(\theta) =$ $6\sec(\theta)\tan(\theta) + 4e^{\theta}\left(\tan(\theta) + \sec^2(\theta)\right)$

8. Question Details SCalcET6 3.3.009.MI. [1386446]

Differentiate the following function.

$$y = \frac{4x}{1 - \cot x}$$

$y' =$ $\dfrac{4\left(1 - \cot(x) - x\csc^2(x)\right)}{\left(1 - \cot(x)\right)^2}$

9. Question Details SCalcET6 3.3.010. [1816900]

Differentiate the following function.

$y = \dfrac{7 + \sin x}{7x + \cos x}$

$y' =$ $\dfrac{7x\cos(x) - 48}{\left(7x + \cos(x)\right)^2}$

10. Question Details SCalcET6 3.3.011. [1817545]

Differentiate.

$f(\theta) = \dfrac{\sec \theta}{3 + \sec \theta}$

$f'(\theta) =$ $\dfrac{3\sec(\theta)\tan(\theta)}{\left(3 + \sec(\theta)\right)^2}$

11. Question Details SCalcET6 3.3.012. [1817302]

Differentiate.

$y = \dfrac{7 - \sec x}{\tan x}$

$y' =$ $\dfrac{\sec(x)\left(1 - 7\sec(x)\right)}{\tan^2(x)}$

12. Question Details SCalcET6 3.3.013. [1816451]

Differentiate the following function.

$y = \dfrac{\cos x}{x^7}$

$y' =$ $-\dfrac{x\sin(x) + 7\cos(x)}{x^8}$

13. Question Details SCalcET6 3.3.014. [3067772]

Differentiate the following function.

$y = \csc(\theta)\,(\theta + \cot\theta)$

$y' =$ $-\csc(\theta)\cot(\theta)\,(\theta + 2\cot(\theta))$

14. Question Details SCalcET6 3.3.021. [1816590]

Find an equation of the tangent line to the curve at the given point.

$y = \sec x, \quad (\pi/6, 2\sqrt{3}/3)$

$y =$ $\dfrac{2}{3}x - \dfrac{\pi}{9} + \dfrac{2\sqrt{3}}{3}$

15. Question Details SCalcET6 3.3.022. [1817375]

Find an equation of the tangent line to the curve at the given point.

$y = 4e^x \cos x, \quad (0, 4)$

$y =$ $4x + 4$

16. Question Details SCalcET6 3.3.023. [1816318]

Find an equation of the tangent line to the curve at the given point.

$y = 8x + 6\cos x, \quad P = (0, 6)$

$y =$ $8x + 6$

17. Question Details SCalcET6 3.3.024. [1817003]

Find an equation of the tangent line to the curve at the given point.

$y = \dfrac{4}{\sin x + \cos x}, \quad P = (0, 4)$

$y =$ $-4x + 4$

18. Question Details SCalcET6 3.3.025. [1290968]

Find an equation of the tangent line to the curve at the given point.

$y = 8x \cos x$

$P = (\pi, -8\pi)$

$y =$ $-8x$

19. Question Details SCalcET6 3.3.026. [1816628]

Find an equation of the tangent line to the curve at the given point.

$y = \sec x - 6 \cos x, \quad P = \left(\frac{\pi}{3}, -1\right)$

$y =$ $5\sqrt{3}x - 1 - \frac{5\sqrt{3}}{3}\pi$

20. Question Details SCalcET6 3.4.009. [1817472]

Find the derivative of the function.

$F(x) = \sqrt[4]{3 + 3x + x^3}$

$F'(x) =$ $\frac{3 + 3x^2}{4\left(3 + 3x + x^3\right)^{\frac{3}{4}}}$

21. Question Details SCalcET6 3.4.010. [1816390]

Find the derivative of the function.

$f(x) = \left(2 + x^5\right)^{3/4}$

$f'(x) =$ $\frac{15x^4}{4\sqrt[4]{2 + x^5}}$

22. Question Details SCalcET6 3.4.011. [1816890]

Find the derivative of the function.

$g(t) = \frac{1}{(t^5 + 2)^4}$

$g'(t) =$ $\frac{-20t^4}{(t^5 + 2)^5}$

23. Question Details SCalcET6 3.4.012. [1816178]

Find the derivative of the function.

$f(t) = \sqrt[8]{2 + \tan t}$

$f'(t) =$ $\frac{\sec^2(t)}{8\sqrt[8]{(2 + \tan(t))^7}}$

24. Question Details SCalcET6 3.4.017. [1816563]

Find the derivative of the function.

$g(x) = (1 + 4x)^6(1 + x - x^2)^7$

$g'(x) =$ $(1+4x)^5\left(1+x-x^2\right)^6\left(38x-80x^2+31\right)$

25. Question Details SCalcET6 3.4.018.MI. [1816044]

Find the derivative of the function.

$h(t) = (t^4 - 1)^7(t^3 + 1)^4$

$h'(t) =$ $t^2\left(t^4-1\right)^6\left(t^3+1\right)^3\left(40t^4+28t-12\right)$

26. Question Details SCalcET6 3.4.019. [1816573]

Find the derivative of the function.

$y = (4x - 5)^4(7x^2 - 4)^{-3}$

$y' =$ $(4x-5)^3\left(7x^2-4\right)^{-4}\left(-56x^2+210x-64\right)$

27. Question Details SCalcET6 3.4.021. [1816393]

Find the derivative of the function.

$y = \left(\frac{x^2 + 1}{x^2 - 1}\right)^3$

$y' =$ $\frac{-12x\left(x^2+1\right)^2}{\left(x^2-1\right)^4}$

28. Question Details SCalcET6 3.4.023. [1290737]

Find the derivative of the function.

$y = e^{6x \sin(x)}$

$y' =$ $6e^{6x\sin(x)}\left(\cos\left(x\right)\cdot x+\sin\left(x\right)\right)$

29. Question Details SCalcET6 3.4.024. [1816939]

Find the derivative of the function.

$y = 4^{5-x^2}$

$y' =$ $-2x\left(\ln\left(4\right)\right)4^{5-x^2}$

30. Question Details SCalcET6 3.4.025. [1816462]

Find the derivative of the function.

$F(z) = \sqrt{\dfrac{z-9}{z+9}}$

$F'(z) =$ $\dfrac{9}{\sqrt{z-9}(z+9)^{3/2}}$

31. Question Details SCalcET6 3.4.026. [1817114]

Find the derivative of the function.

$G(y) = \dfrac{(y-2)^6}{(y^2+4y)^9}$

$G'(y) =$ $\dfrac{6(y-2)^5(-2y^2+4y+12)}{(y^2+4y)^{10}}$

32. Question Details SCalcET6 3.4.029. [1816516]

Find the derivative of the function.

$y = \sin(\tan 9x)$

$y' =$ $9\cos(\tan(9x))(\sec(9x))^2$

33. Question Details SCalcET6 3.4.030. [1817228]

Find the derivative of the function.

$G(y) = \left(\dfrac{y^2}{y+5}\right)^3$

$G'(y) =$ $\dfrac{3y^5(y+10)}{(y+5)^4}$

34. Question Details SCalcET6 3.4.031. [1816805]

Find the derivative of the function.

$y = 7^{\sin \pi x}$

$y' =$ $7^{\sin(\pi x)}(\pi \ln(7))\cos(\pi x)$

35. Question Details SCalcET6 3.4.034. [1817281]

Find the derivative of the function.

$y = x \sin \dfrac{1}{x}$

$y'(x) =$ $\sin\left(\dfrac{1}{x}\right) - \dfrac{1}{x}\cos\left(\dfrac{1}{x}\right)$

36. Question Details SCalcET6 3.4.035. [1816324]

Find the derivative of the function.

$$y = \cos\left(\frac{1 - e^{8x}}{1 + e^{8x}}\right)$$

$y' =$ $\sin\left(\frac{1-e^{8x}}{1+e^{8x}}\right)\frac{16e^{8x}}{(1+e^{8x})^2}$

37. Question Details SCalcET6 3.4.036. [1816093]

Find the derivative of the function.

$$f(t) = \sqrt{\frac{t}{t^2 + 6}}$$

$f'(t) =$ $\frac{6-t^2}{2\sqrt{t}\,(t^2+6)^{\frac{3}{2}}}$

38. Question Details SCalcET6 3.4.039. [1816481]

Find the derivative of the function.

$$f(t) = \tan(e^{6t}) + e^{\tan 6t}$$

$f'(t) =$ $6\sec^2\left(e^{6t}\right)e^{6t} + 6e^{\tan(6t)}\left(\sec^2(6t)\right)$

39. Question Details SCalcET6 3.4.051. [1289924]

Find an equation of the tangent line to the curve at the point (0, 1).

$$y = (1 + 3x)^{15}$$

$y =$ $45x + 1$

40. Question Details SCalcET6 3.4.054. [1816782]

Find an equation of the tangent line to the curve at the point $\left(1, \frac{1}{e}\right)$.

$$y = x^4e^{-x}$$

$y =$ $\frac{3x}{e} - \frac{2}{e}$

41. Question Details SCalcET6 3.4.055. [1290228]

Find an equation of the tangent line to the curve below at the point (0, 1).

$$y = \frac{2}{1 + e^{-x}}$$

$y =$ $\frac{x}{2} + 1$

42. Question Details SCalcET6 3.4.059. [1290850]

Find all points on the graph of the function $f(x) = 2\cos(x) + (\cos(x))^2$ at which the tangent line is horizontal. Consider the domain $x = [0,2\pi)$.

(0 , 3) (smaller x value)

(π , -1) (larger x value)

43. Question Details SCalcET6 3.4.060. [1291251]

Find the x-coordinate of all points on the curve $y = \sin(2x) - 2\sin(x)$ at which the tangent line is horizontal. Consider the domain $x = [0,2\pi)$.

$x =$ 0 (smallest value)

$x =$ $\frac{2\pi}{3}$

$x =$ $\frac{4\pi}{3}$ (largest value)

Assignment Details

Name (AID): **MATH 141 HW 06 (6354694)**
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