Due: Fri Oct 3 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

---

1. Question Details SCalcET6 3.5.009. [1817169]

Find dy/dx by implicit differentiation.

$$x^3(x + y) = y^2(4x - y)$$

$y' =$ $\dfrac{4y^2 - 4x^3 - 3x^2y}{x^3 + 3y^2 - 8xy}$

---

2. Question Details SCalcET6 3.5.013. [1817484]

Find dy/dx by implicit differentiation.

$$4 \cos x \sin y = 1$$

$y' =$ $\tan(x)\tan(y)$

---

3. Question Details SCalcET6 3.5.015. [1817231]

Find dy/dx by implicit differentiation.

$$e^{x/y} = 2x - y$$

$y' =$ $\dfrac{y\left(2y - e^{\frac{x}{y}}\right)}{y^2 - xe^{\frac{x}{y}}}$

---

4. Question Details SCalcET6 3.5.016. [1816992]

Find dy/dx by implicit differentiation.

$$\sqrt{9x + y} = 6 + x^2y^2$$

$y' =$ $\dfrac{4xy^2\sqrt{9x+y} - 9}{1 - 4x^2y\sqrt{9x+y}}$

---

5. Question Details SCalcET6 3.5.018. [1816372]

Find dy/dx by implicit differentiation.

$$\tan(x - y) = \frac{y}{1 + x^2}$$

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

6. Question Details SCalcET6 3.5.019. [1816299]

Find dy/dx by implicit differentiation.

$$e^y \cos x = 4 + \sin(xy)$$

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

7. Question Details SCalcET6 3.5.045. [1291480]

Find the derivative of the following function. Simplify where possible.

$$y = 29 \arctan(\sqrt{x})$$

$y' =$ $\dfrac{29}{2\sqrt{x}(1+x)}$

8. Question Details SCalcET6 3.5.046. [1291043]

Find the derivative of the function. Simplify if possible.

$$y = \sqrt{7\arctan(x)}$$

$y' =$ $\dfrac{\sqrt{7}}{2\sqrt{\operatorname{atan}(x)}(1+x^2)}$

9. Question Details SCalcET6 3.5.047.MI. [1816099]

Find the derivative of the function. Simplify where possible.

$$y = \sin^{-1}(2x + 1)$$

$y' =$ $\dfrac{2}{\sqrt{-4x^2 - 4x}}$

10. Question Details SCalcET6 3.5.049. [1816914]

Find the derivative of the function. Simplify where possible.

$$G(x) = \sqrt{1 - 289x^2} \arccos 17x$$

$G'(x) =$ $-17 - \dfrac{289x\cos^{-1}(17x)}{\sqrt{1-289x^2}}$

11. Question Details SCalcET6 3.5.05.XP. [1290653]

Find $f'(x)$. Check that your answer is reasonable by comparing the graphs of f and f'.

$$f(x) = x \arcsin(1 - x^3)$$

$f'(x) =$ $\operatorname{asin}(1-x^3) - \dfrac{3x^3}{\sqrt{1-(1-x^3)^2}}$

12. Question Details SCalcET6 3.5.050. [2944634]

Find the derivative of the function. Simplify where possible.

$$y = 9\tan^{-1}\left(x + \sqrt{1 + x^2}\right)$$

$y' =$ $\dfrac{9}{2\left(x^2+1\right)}$

13. Question Details SCalcET6 3.5.053. [2964907]

Find the derivative of the function. Simplify if possible.

$$y = \arccos(e^{7x})$$

$y' =$ $-\dfrac{7e^{7x}}{\sqrt{1-e^{14x}}}$

14. Question Details SCalcET6 3.5.054. [1817426]

Find the derivative of the function. Simplify where possible.

$$y = \arctan\sqrt{\frac{1 + x}{1 - x}}$$

$y' =$ $\dfrac{1}{2\sqrt{1-x^2}}$

15. Question Details SCalcET6 3.6.002. [1816555]

Differentiate the function.

$$f(x) = \ln(x^3 + 2)$$

$f'(x) =$ $\dfrac{3x^2}{x^3+2}$

16. Question Details SCalcET6 3.6.003.MI. [1816891]

Differentiate the function.

$$f(x) = \sin(9 \ln x)$$

$f'(x) =$ $\dfrac{9\cos\left(9\ln\ x\right)}{x}$

17. Question Details SCalcET6 3.6.004. [1816079]

Differentiate the function.

$$f(x) = \ln(169 \sin^2 x)$$

$f'(x) =$ $2\cot\left(x\right)$

18. Question Details SCalcET6 3.6.007. [1816039]

Differentiate the function.

$f(x) = \sqrt[9]{\ln x}$

$f'(x) =$ $\dfrac{1}{9x\sqrt[9]{(\ln x)^8}}$

19. Question Details SCalcET6 3.6.008. [1817497]

Differentiate the function.

$f(x) = \ln \sqrt[6]{x}$

$f'(x) =$ $\dfrac{1}{6x}$

20. Question Details SCalcET6 3.6.009. [1816061]

Differentiate the function.

$f(x) = \sin(x)\ln(9x)$

$f'(x) =$ $\dfrac{\sin(x)}{x} + \cos(x)\ln(9x)$

21. Question Details SCalcET6 3.6.01.XP. [1291845]

Differentiate the function.

$f(x) = \ln(\cos(x))$

$f'(x) =$ $-\tan(x)$

22. Question Details SCalcET6 3.6.011. [1816816]

Differentiate the function.

$F(t) = \ln\left(\dfrac{(3t+1)^4}{(3t-1)^5}\right)$

$F'(t) =$ $\dfrac{-9t-27}{(3t+1)(3t-1)}$

23. Question Details SCalcET6 3.6.018. [1816926]

Differentiate the function.

$H(z) = \ln\sqrt{\dfrac{a^2-z^2}{a^2+z^2}}$

$H'(z) =$ $\dfrac{2a^2z}{z^4-a^4}$

24. Question Details SCalcET6 3.6.033. [1817116]

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

$$y = \ln(xe^{x^6})$$

y = $7x - 6$

25. Question Details SCalcET6 3.6.034.MI. [1387169]

Find an equation of the tangent line to the curve at the point (3, 0).

$y = \ln(x^2 - 8)$

y = $6x - 18$

26. Question Details SCalcET6 3.6.037. [1291378]

Use logarithmic differentiation to find the derivative of the following equation.

$y = (6x + 1)^5(x^4 - 1)^6$

$y' = (6x+1)^5 (x^4-1)^6 \left(\frac{30}{6x+1} + \frac{24x^3}{x^4-1}\right)$

27. Question Details SCalcET6 3.6.038. [1291357]

Use logarithmic differentiation to find the derivative of the function.

$$y = \sqrt{x}e^{x^2} (x^2+3)^8$$

$y' = \left(\sqrt{x}e^{x^2} (x^2+3)^8\right)\left(\frac{1}{2x} + 2x + \frac{16x}{x^2+3}\right)$

28. Question Details SCalcET6 3.6.039. [1291678]

Use logarithmic differentiation to find the derivative of the function.

$$y = \frac{(\sin(x))^6 (\tan(x))^4}{(x^2+1)^2}$$

$y' = \left(6\cot(x) + \frac{4}{\sin(x)\cos(x)} - \frac{4x}{x^2+1}\right) \cdot \frac{(\sin(x))^6 \cdot (\tan(x))^4}{(x^2+1)^2}$

29. Question Details SCalcET6 3.6.041. [1817318]

Use logarithmic differentiation to find the derivative of the function.

$y = x^{5x}$

$y' = 5x^{5x}(1 + \ln(x))$

30. Question Details SCalcET6 3.6.042.MI. [1817205]

Use logarithmic differentiation to find the derivative of the function.

$y = x^{8 \cos x}$

$y' =$ $8x^{8\cos(x)}\left(\frac{\cos(x)}{x} - \ln(x)\sin(x)\right)$

31. Question Details SCalcET6 3.6.043. [1816697]

Use logarithmic differentiation to find the derivative of the function.

$y = x^{6 \sin x}$

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

32. Question Details SCalcET6 3.6.045. [1817075]

Use logarithmic differentiation to find the derivative of the function.

$y = (\cos 7x)^{x}$

$y' =$ $(\cos(7x))^{x}\left(\ln(\cos(7x)) - 7x\tan(7x)\right)$

33. Question Details SCalcET6 3.6.046. [1816874]

Use logarithmic differentiation to find the derivative of the function.

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

$y' =$ $(\sin(7x))^{\ln(x)}\left(7\ln(x)\cot(7x) + \frac{\ln(\sin(7x))}{x}\right)$

34. Question Details SCalcET6 3.6.047. [1817030]

Use logarithmic differentiation to find the derivative of the function.

$y = (\tan x)^{6/x}$

$y' =$ $(\tan(x))^{\frac{6}{x}} \cdot \frac{6}{x}\left(\csc(x)\sec(x) - \frac{\ln(\tan(x))}{x}\right)$

35. Question Details SCalcET6 3.6.048. [1817238]

Use logarithmic differentiation to find the derivative of the function.

$y = (\ln x)^{\cos 11x}$

$y' =$ $(\ln(x))^{\cos(11x)}\left(\frac{\cos(11x)}{x\ln(x)} - 11\sin(11x)\ln(\ln(x))\right)$

Assignment Details