Hieu Pham **Brewer_MAT_265_ONLINE_Spring_2014**
Assignment Mastery_II due 04/17/2014 at 07:50pm MST

Problem 1. 15. (1 pt) Let

$$f(x) = (-2x^2+3)^4(-4x^2+6)^{12}$$

$f'(x) =$ _____

Answer(s) submitted:

- `262144 x (2(x^2) - 3)^15`

(correct)
Correct Answers:

- `(-2*x^2+3)^3 * (-4*x^2+6)^11 * (256*x^3 + -384*x)`

Problem 2. 10. (1 pt) If $f(t) = (8t - \frac{6}{t})^{\frac{6}{9}}$, find $f'(t)$.

_____

Answer(s) submitted:

- `((2((6/t^2)+8)/(3(8t-(6/t))^(1/3)))`

(incorrect)
Correct Answers:

- `6/9*(8*t-6/t)**(6/9-1)*(8+6/(t**2))`

Problem 3. 13. (1 pt) Let

$$y = (7+\cos^2 x)^{12}$$

$\frac{dy}{dx} =$ _____

Answer(s) submitted:

- `-24sin(x)cos(x) ((((cos(x))^2) + 7)^11)`

(correct)
Correct Answers:

- `-2*cos(x)*sin(x)*12*(7+(cos(x))^2)^(12-1)`

Problem 4. 6. (1 pt) If $f(t) = \sqrt[3]{t^2} + 2\sqrt{t^3}$, find $f'(t)$.
$f'(t) =$ _____

Answer(s) submitted:

- `(((9sqrt(t^3))+(2(t^2)^(1/3)))/(3t))`

(correct)
Correct Answers:

- `(2/3)*(t^(-1/3)) + (3)*(t**(1/2))`

Problem 5. 22. (1 pt)

Let $f(x) = \frac{4}{6x+7}$.

$f'(x) =$ _____

Answer(s) submitted:

- `-(24/((6x + 7)^2))`

(correct)
Correct Answers:

- `-4*6/(6*x +7)**2`

Problem 6. 19. (1 pt) Let

$$f(x) = 5\csc(6x)$$

$f'(x) =$ _____

Answer(s) submitted:

- `-30cot(6x)csc(6x)`

(correct)
Correct Answers:

- `-5*6/(tan(6*x)*sin(6*x))`

Problem 7. 26. (1 pt) If $y = 9\pi^4$, find y'.

_____

Answer(s) submitted:

- `0`

(correct)
Correct Answers:

- `0`

Problem 8. 24. (1 pt) If $f(x) = 5 + \frac{7}{x} + \frac{7}{x^2}$, find $f'(x)$.

_____

Answer(s) submitted:

- `-(7(x+2))/(x^3)`

(correct)
Correct Answers:

- `-7*x**(-2) -2*7*x**(-3)`

Problem 9. 9. (1 pt) Differentiate

$$f(x) = \tan x(4\sin x + 2\cos x).$$

$f'(x) =$ _____

Answer(s) submitted:

- `2(((2tan(x)+1)sec(x)) - (sin(x)(tan(x) - 2)))`

(correct)
Correct Answers:

- `(sec(x))^{2}*(4*sin(x) + 2*cos(x)) + tan(x)*(4*cos(x) - 2*sin(x))`

Problem 10. 2. (1 pt) If $f(t) = 3t^{-4/3}$, find $f'(t)$.
$f'(t) =$ _____

Answer(s) submitted:

- `-4/(t^(7/3))`

(correct)
Correct Answers:

- `(-4)*(t**((-4/3)-1))`

Problem 11. 4. (1 pt) If $f(x) = \frac{4x^2+2x+30}{\sqrt{x}}$, find $f'(x)$.
$f'(x) =$ _____

Answer(s) submitted:

- `((6(x^2) + x - 15)/(x^(3/2)))`

(correct)
Correct Answers:

- `(4)*(3/2)*(x**(1/2)) + (2/2)*(x**(-1/2)) -(30/2)*(x**(-3/2))`

Problem 12. 29. (1 pt) Find the first and second derivative of the function.

$$f(x) = 6\sin x + 5\cos x.$$

$f'(x) =$ _____

$f''(x) =$ _____

Answer(s) submitted:

- `6cos(x) - 5sin(x)`
- `-6sin(x) - 5cos(x)`

(correct)
Correct Answers:

- `6*cos(x) - 5*sin(x)`
- `-6*sin(x) - 5*cos(x)`

Problem 13. 25. (1 pt) If $f(x) = \frac{-2x^5+3x^4-4x^3}{x^4}$, find $f'(x)$.

_____

Answer(s) submitted:

- `(4/(x^2)) - 2`

(correct)
Correct Answers:

- `-2 - -4/x^2`

Problem 14. 5. (1 pt) If $f(x) = 11\sqrt{x}(x-4)$, find $f'(x)$.
$f'(x) =$ _____

Answer(s) submitted:

- `(11(3x - 4))/(2sqrt(x))`

(correct)
Correct Answers:

- `(11)*(3/2)*(x**(1/2)) - (11)*(4/2)*(x**(-1/2))`

Problem 15. 3. (1 pt) If $f(t) = 7\sqrt{t} + \frac{5}{\sqrt{t}}$, find $f'(t)$.
$f'(t) =$ _____

Answer(s) submitted:

- `((7t - 5)/(2t((3/2)))`

(incorrect)
Correct Answers:

- `(7/2)*(t**(-1/2)) - (1/2)*(5)*(t**(-3/2))`

Problem 16. 27. (1 pt) If $f(u) = \sqrt{4}u + \sqrt{8u}$, find $f'(u)$

_____

Answer(s) submitted:

- `((sqrt(2))/(sqrt(u))) + 2`

(correct)
Correct Answers:

- `sqrt(4)+sqrt(8)/(2*sqrt(u))`

Problem 17. 17. (1 pt) If $f(x) = \cos x - 5\tan x$, then
$f'(x) =$ _____
Answer(s) submitted:

- `-sin(x) - 5((sec(x))^2)`

(correct)
Correct Answers:

- `-sin(x)-5*(sec(x))^2`

Problem 18. 7. (1 pt) Let $f(x) = (5x - 7x^3)(7 + \sqrt{x})$. Find $f'(x)$.
$f'(x)$ = _____

Answer(s) submitted:

- `(((-294(x)^(5/2))-(49(x^3))+(5))/(2sqrt(x)))`

(incorrect)
Correct Answers:

- `(5-3*7*(x)**2)*(7+sqrt(x))+(5*x -7*x**3)*(1/(2*sqrt(x)))`

Problem 19. 18. (1 pt) Let $f(x) = 7\sin(7x-7)$. Find $f'(x)$.
$f'(x) =$ _____
Answer(s) submitted:

- `49cos(7 - 7x)`

(correct)
Correct Answers:

- `7*7*cos(7*x-7)`

Problem 20. 11. (1 pt) Let

$$f(x) = \frac{4x}{\sqrt{5-3x}}$$

$f'(x) =$ _____

Answer(s) submitted:

- `((20 - 6x)/((5 - 3x)^(3/2)))`

(correct)
Correct Answers:

- `(4*(5-3*x)+4*3*x/2)/(5-3*x)**(3/2)`

Problem 21. 32. (1 pt) Find dy/dx by implicit differentation:

$$3 + 6x = \sin(xy^8)$$

_____

Answer(s) submitted:

- `-(((y^8) - 6sec(x(y^8)))/(8x(y^7)))`

(correct)
Correct Answers:

- `y*(y**(-8)*6-cos(x*y**8))/(8*x*cos(x*y**8))`

Problem 22. 8. (1 pt) Find the derivative of $f(x) = x^7 \cos x$
$f'(x) =$ _____
SOLUTION:

SOLUTION
Using the product rule,

$$f'(x) = 7x^6\cos(x) - x^7\sin(x)$$

Answer(s) submitted:

- `(x^6)(7cos(x) - xsin(x))`

(correct)
Correct Answers:

- `7*x^(7-1)*cos(x) - x^(7)*sin(x)`

Problem 23. 31. (1 pt) If $f(x) = (x-9)(3x+9)$, then

$f'(x) =$ _____

Answer(s) submitted:

- `6(x-3)`

(correct)
Correct Answers:

- `2*3*x +9 -9*3`

Problem 24. 20. (1 pt) Let

$$f(x) = 5\sin(\sin x)$$

$f'(x) =$ _____

Answer(s) submitted:

- `5cos(x)cos(sin(x))`

(correct)
Correct Answers:

- `5*cos(sin(x))*cos(x)`

Problem 25. 28. (1 pt) If $f(t) = 3\sin t - 3\pi\cos t$, find $f'(t)$

_____

Answer(s) submitted:

- `3((pi)sin(t) + cos(t))`

(correct)
Correct Answers:

- `3*cos(t) +3*3.14159265358979*sin(t)`

Problem 26. 30. (1 pt) If $f(t) = \dfrac{\sin t}{2} + \dfrac{3}{t}$, then

$f'(t) =$ _____

Answer(s) submitted:

- `((cos(t))/2)-(3/(t^2))`

(correct)
Correct Answers:

- `cos(t)/2-3/t^2`

Problem 27. 21. (1 pt) If $f(x) = 3x^2 - 9x - 24$, find $f'(x)$.

Answer(s) submitted:

- `6x-9`

(correct)
Correct Answers:

- `2*3*x-9`

Problem 28. 12. (1 pt) Let

$$y = \sqrt{9 + 4\tan x}$$

$\frac{dy}{dx} =$ _____

Answer(s) submitted:

- `((2((sec(x))^2)/(sqrt(4tan(x) + 9)))`

(incorrect)
Correct Answers:

- `4/2*(sec(x))^2*(9+4*tan(x))^(-.5)`

Problem 29. 23. (1 pt)

Let $f(x) = 6x^4\sqrt{x} + \frac{-8}{x^2\sqrt{x}}$.

$f'(x) =$ _____

[NOTE: Your answer should be a function in terms of the variable 'x' and not a number!]

Answer(s) submitted:

- `((27(x^7) + 20)/(x^(7/2)))`

(correct)
Correct Answers:

- `6*(4 + 1/2)*x**(4 - 1/2) - -8*(2 + 1/2)/x**(2+3/2)`

Problem 30. 16. (1 pt) Let $f(x) = -4\sin^3 x$.

$f'(x) =$ _____
Answer(s) submitted:

- `-6sin(x)sin(2x)`

(correct)
Correct Answers:

- `-4*3*(sin(x))^(3 - 1)*cos(x)`

Problem 31. 1. (1 pt)
Differentiate the following function:

$$V(r) = \frac{4}{3}\pi r^3$$

$V'(r) =$ _____
Answer(s) submitted:

- `4 (pi) (r^2)`

(correct)
Correct Answers:

- `(4* pi* r^2)`

Problem 32. 14. (1 pt) If $f(t) = (t^2 + 5t + 8)(5t^{-2} + 3t^{-3})$, find $f'(t)$.

Answer: _____
Answer(s) submitted:

- `-((2(14t^2 + 55t + 36))/( t^4))`

(correct)
Correct Answers:

- `(2*t+5)*(5*t^(-2) +3*t^(-3)) + (t^2 + 5*t+8)*(-2*5*t^(-3)-`

Generated by ©WeBWorK, http://webwork.maa.org, Mathematical Association of America