Quiz 2

You scored 0 out of 100

Question 1

You did not answer the question.

Determine the domain and find the derivative.
$$f(x) = \ln(\ln(8x))$$

a) ○ domain: $(-\infty, \infty)$, $f'(x) = \ln(8x)$

b) ○ domain: $(-\infty, \infty)$, $f'(x) = \dfrac{1}{x \ln(8x)}$

c) ○ domain: $(1/8, \infty)$, $f'(x) = \dfrac{1}{x \ln(8x)}$

d) ○ domain: $(-\infty, 0)$, $f'(x) = \ln(8x)$

e) ○ domain: $(1, \infty)$, $f'(x) = \dfrac{1}{\ln(8x)}$

Question 2

You did not answer the question.

Determine the domain and find the derivative.
$$f(x) = \cos(\ln(2x))$$

a) ○ domain: $(0, \infty)$, $f'(x) = \dfrac{\cos(\ln(2x))}{x}$

b) ○ domain: $(-\infty, 0)$, $f'(x) = \ln(2x)$

c) ○ domain: $(0, \infty)$, $f'(x) = -\dfrac{1}{2}\dfrac{\sin(\ln(2x))}{x}$

d) ○ domain: $(0, \infty)$, $f'(x) = -\dfrac{\sin(\ln(2x))}{x}$

e) ⊙ domain: $(-\infty, \infty)$, $f'(x) = -\dfrac{\sin(\ln(2x))}{x}$

Question 3

You did not answer the question.

Calculate the integral.

$$\int \frac{x}{7 - 4x^2}\, dx$$

a) ⊙ $\dfrac{1}{2} \ln\left(\left|-7 + 4x^2\right|\right) + C$

b) ⊙ $-\dfrac{1}{8} \ln\left(\left|-7 + 4x^2\right|\right) + C$

c) ⊙ $\dfrac{4x}{\left(7 - 4x^2\right)^2} + C$

d) ⊙ $\dfrac{1}{8} \ln\left(\left|-7 + 4x^2\right|\right) + C$

e) ⊙ $\dfrac{4}{\left(7 - 4x^2\right)^2} + C$

Question 4

You did not answer the question.

Calculate the integral.

$$\int \frac{\ln(5x - 9)}{5x - 9}\, dx$$

a) ⊙ $\ln(\ln(5x - 9)) + C$

b) ⊙ $\dfrac{1}{10} \left(\ln(5x - 9)\right)^2 + C$

c) ⊙ $\dfrac{1}{2} \left(\ln(5x - 9)\right)^2 + C$

d) $-\dfrac{1}{10}\left(\ln(5\,x-9)\right)^2 + C$

e) $\ln(5\,x-9) + C$

Question 5

You did not answer the question.

Calculate the integral.

$$\int \frac{\sin(6\,x) - \cos(6\,x)}{\sin(6\,x) + \cos(6\,x)}\,dx$$

a) $-\dfrac{1}{7}\ln|\sin(6\,x) + \cos(6\,x)| + C$

b) $\dfrac{1}{6}\ln|\sin(6\,x) + \cos(6\,x)| + C$

c) $-\dfrac{1}{6}\ln|-\sin(6\,x) + \cos(6\,x)| + C$

d) $\dfrac{1}{7}\ln|-\sin(6\,x) + \cos(6\,x)| + C$

e) $-\dfrac{1}{6}\ln|\sin(6\,x) + \cos(6\,x)| + C$

Question 6

You did not answer the question.

Calculate the integral.

$$\int \frac{1}{4\sqrt{x}\,(2 + \sqrt{x})}\,dx$$

a) $-\dfrac{1}{2}\ln\left(4\sqrt{x}\right) + C$

b) $-\dfrac{1}{2}\ln\left(2 + \sqrt{x}\right) + C$

c) $-4\ln\left(4\sqrt{x}\right) + C$

d) ⚪ $\dfrac{1}{2} \ln\left(2 + \sqrt{x}\right) + C$

e) ⚪ $-4 \ln\left(1 + \sqrt{x}\right) + C$

Question 7

You did not answer the question.

Evaluate the definite integral.

$$\int_{7}^{e^5} \frac{1}{x} \, dx$$

a) ⚪ $\ln(7) - 5$

b) ⚪ $-\ln(7) + 5$

c) ⚪ $-2 \ln(7) + 10$

d) ⚪ $-\ln(7)$

e) ⚪ $-\ln(5) + 7$

Question 8

You did not answer the question.

Evaluate the definite integral.

$$\int_{\frac{1}{6}\pi}^{\frac{1}{2}\pi} \frac{\cos(x)}{9 + \sin(x)} \, dx$$

a) ⚪ $\ln\left(\dfrac{21}{20}\right)$

b) ⚪ $\ln\left(\dfrac{18}{17}\right)$

c) ⚪ $\ln\left(\dfrac{20}{19}\right)$

d) ○ $\ln\left(\dfrac{22}{21}\right)$

e) ○ $\ln\left(\dfrac{19}{18}\right)$

Question 9

You did not answer the question.

Calculate the derivative by logarithmic differentiation.

$$g(x) = \left(x^2 + 1\right)^3 (x - 1)^6 \, x^4$$

a) ○ $g\,'(x) = \dfrac{6x}{x^2 + 1} - \dfrac{6}{x - 1} - \dfrac{4}{x}$

b) ○ $g\,'(x) = \left(x^2 + 1\right)^3 (x - 1)^6 x^4 \left(\dfrac{3x}{x^2 + 1} + \dfrac{6}{x - 1} + \dfrac{4}{x}\right)$

c) ○ $g\,'(x) = \left(x^2 + 1\right)^3 (x - 1)^6 x^4 \left(\dfrac{6x}{x^2 + 1} - \dfrac{6}{x - 1} - \dfrac{4}{x}\right)$

d) ○ $g\,'(x) = \dfrac{6x}{x^2 + 1} + \dfrac{6}{x - 1} + \dfrac{4}{x}$

e) ○ $g\,'(x) = \left(x^2 + 1\right)^3 (x - 1)^6 x^4 \left(\dfrac{6x}{x^2 + 1} + \dfrac{6}{x - 1} + \dfrac{4}{x}\right)$

Question 10

You did not answer the question.

Find the points of inflection for the function

$$f(x) = 3\,x^2 \ln\left(\dfrac{1}{2}\,x\right)$$

a) ○ $\left(-18\,e^{-3},\ 2\,e^{-\frac{3}{2}}\right)$

b) ○ $\left(-2\,e^{-\frac{3}{2}},\ 18\,e^{-3}\right)$

c) ⦿ $\left(4\,e^{-\frac{3}{2}},\ -36\,e^{-3}\right)$

d) ⦿ $\left(2\,e^{-\frac{3}{2}},\ 0\right)$

e) ⦿ $\left(2\,e^{-\frac{3}{2}},\ -18\,e^{-3}\right)$

Question 11

Differentiate

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

a) ⦿ $y' = \dfrac{e^{-3x}}{x^4} + \dfrac{9\,e^{-3x}}{x^3}$

b) ⦿ $y' = -\dfrac{e^{-3x}}{x^4} - \dfrac{e^{-3x}}{x^3}$

c) ⦿ $y' = -\dfrac{3\,e^{-3x}}{x^4} - \dfrac{3\,e^{-3x}}{x^3}$

d) ⦿ $y' = -\dfrac{4\,e^{-3x}}{x^3}$

e) ⦿ $y' = \dfrac{3\,e^{-3x}}{x^4} + \dfrac{3\,e^{-3x}}{x^3}$

Question 12

Differentiate

$$y = \left(e^{x^4} + 2\right)^2$$

a) ⚪ $y' = \dfrac{\left(e^{x^4} + 2\right) e^{x^4}}{x}$

b) ⚪ $y' = 8\left(e^{x^4} + 2\right)^2 x^3 e^{x^4}$

c) ⚪ $y' = 2\left(e^{x^4} + 2\right) x^3 e^{x^4}$

d) ⚪ $y' = 8\left(e^{x^4} + 2\right) x^3 e^{x^4}$

e) ⚪ $y' = 4\left(e^{x^4} + 2\right) x^3 e^{x^4}$

Question 13

You did not answer the question.

Calculate the given integral.

$$\int 4\,e^{-2x}\,dx$$

a) ⚪ $2\,e^{-2x} + C$

b) ⚪ $-2\,e^{-2x} + C$

c) ⚪ $-4\,e^{-2x} + C$

d) ⚪ $\dfrac{1}{2}\,e^{-2x} + C$

e) ⚪ $-\dfrac{1}{2}\,e^{-2x} + C$

Question 14

You did not answer the question.

Calculate the given integral.

$$\int 5\,e^{\ln(3x)}\,dx$$

a) ⚪ $30\,x^2 + C$

b) $\dfrac{15}{2} x^2 + C$

c) $-\dfrac{5}{2} x^2 + C$

d) $\dfrac{5}{2} \ln(3) + \dfrac{5}{2} \ln(x) + C$

e) $\dfrac{3}{2} e^{3x} + C$

Question 15

Calculate the given integral.

$$\int \frac{\sin\left(7 e^{-6x}\right)}{e^{6x}} \, dx$$

a) $7 \cos\left(7 e^{6x}\right) + C$

b) $-\dfrac{1}{6} \cos\left(7 e^{-6x}\right) + C$

c) $-\dfrac{1}{7} \cos\left(7 e^{6x}\right) + C$

d) $\dfrac{6}{7} \cos\left(7 e^{-6x}\right) + C$

e) $\dfrac{1}{42} \cos\left(7 e^{-6x}\right) + C$

Question 16

Find the 4th derivative of $f(x) = e^{4x}$

a) $-256 e^{4x}$

b) $1024 e^{4x}$

c) ○ $-64\,e^{4\,x}$

d) ○ $64\,e^{4\,x}$

e) ○ $256\,e^{4\,x}$

Question 17

You did not answer the question.

Differentiate the given function.

$$f(x) = \frac{Log_9(x)}{x^3}$$

a) ○ $f'(x) = -\frac{1}{2}\,\frac{-x^3 + 3\ln(x)}{x^4\,\ln(3)}$

b) ○ $f'(x) = -\frac{1}{2}\,\frac{-x + 3\ln(x)}{x^4\,\ln(3)}$

c) ○ $f'(x) = -\frac{-1 + 3\ln(x)}{x^4\,\ln(3)}$

d) ○ $f'(x) = -\frac{1}{2}\,\frac{-1 + 3\ln(x)}{x^4\,\ln(3)}$

e) ○ $f'(x) = \frac{1}{2}\,\frac{1 + 6\ln(x)\,\ln(3)}{x^4\,\ln(3)}$

Question 18

You did not answer the question.

Calculate the given integral.

$$\int \left(x^4 + 5^{-x}\right) dx$$

a) ○ $\frac{1}{5}x^5 - \frac{5^{-x}}{\ln(5)} + C$

b) $\dfrac{1}{5}x^5 + \dfrac{5^{-x}}{\ln(5)} + C$

c) $\dfrac{1}{4}x^4 - \dfrac{5^{-x}}{\ln(5)} + C$

d) $-\dfrac{1}{5}x^5 - \dfrac{5^{-x}}{\ln(6)} + C$

e) $\dfrac{1}{4}x^4 - \dfrac{5^{-x}}{\ln(6)} + C$

Question 19

You did not answer the question.

Find the derivative by logarithmic differentiation.

$$\frac{d}{dx}\,(3x+2)^x$$

a) $-(3x+2)^x\,(\ln(3x)+3x)$

b) $(3x+2)^x\,(\ln(3x)+1)$

c) $-(3x+2)^x\,(\ln(3x+2)+x\,(3x+2))$

d) $(3x+2)^x\left(\ln(3x+2)+\dfrac{3}{3x+2}\right)$

e) $(3x+2)^x\left(\ln(3x+2)+\dfrac{3x}{3x+2}\right)$

Question 20

You did not answer the question.

Evaluate the given integral.

$$\int_3^4 2^{-x}\,dx$$

a) $-\dfrac{8}{\ln(2)}$

b) ⚫ $-\dfrac{8}{\ln(3)}$

c) ⚫ $\dfrac{1}{16\ln(2)}$

d) ⚫ $\dfrac{3}{16\ln(3)}$

e) ⚫ $\dfrac{1}{32\ln(2)}$