

Question 10

Not yet answered

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Obtain $\frac{d}{dx} \left\{ \ln \left(\frac{x^2}{x^2+1} \right) \right\}$

Select one:

- ☐ a. $\frac{2}{x(x^2+1)}$
- ☐ b. $-\frac{2}{x(x^2+1)}$
- ☐ c. $-\frac{5}{x(x^2+1)}$
- ☐ d. $\frac{5}{x(x^2+1)}$

(ARCHITECTURE | BASIC MEDICAL SCIENCES |
CLINICAL SCIENCES | COMPUTING AND
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Question 3

Not yet answered

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Differentiate $y = \log(x^3 - x) + 7^{\frac{2}{3}x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$

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Question 10

Not yet answered

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Differentiate $y = \log(x^3 - x) + 7^{2/3x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$

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Question 8

Not yet answered

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Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$
- ☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

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[Back](#)[Time left 0:09:16](#)**Question 2**

Not yet answered

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Obtain $\frac{d}{dx} \left\{ \ln \left(\frac{x^2}{x^2 + 1} \right) \right\}$

Select one:

- ☐ a. $\frac{2}{x(x^2 + 1)}$
- ☐ b. $-\frac{2}{x(x^2 + 1)}$
- ☐ c. $-\frac{5}{x(x^2 + 1)}$
- ☐ d. $\frac{5}{x(x^2 + 1)}$

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Not yet answered. Marked out of 1. Flag question

Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$

☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$

☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$

☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

Question 1

Not yet answered

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Simplify $\int 3x^2 e^{x^3} dx$

Select one:

- ☐ a. $e^{x^3} + C$
- ☐ b. $e^{x^2} + C$
- ☐ c. $e^{x^3} + C$
- ☐ d. $e^{x^2} + C$

Evaluate $\int \frac{dx}{x^2 + 4x + 7} dx$

Select one:

- ☐ a. $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x+3}{\sqrt{2}} \right) + C$
- ☐ b. $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{x+2}{\sqrt{3}} \right) + C$
- ☐ c. $\frac{1}{\sqrt{6}} \tan^{-1} \left(\frac{x+7}{\sqrt{6}} \right) + C$
- ☐ d. $\frac{1}{\sqrt{5}} \tan^{-1} \left(\frac{x+6}{\sqrt{5}} \right) + C$

Simplify $\int \frac{4x-5}{x^2-x-2} dx$

Select one:

- ☐ a. $\ln|x-1| + \ln|x+2| + C$
- ☐ b. $3\ln|x+1| + \ln|x-2| + C$
- ☐ c. $\ln|x-1| - 2\ln|x-2| + C$
- ☐ d. $4\ln\left|\frac{x-2}{x-1}\right| + C$

Find $\frac{dy}{dx}$ if $3x^2y + xy^2 = 5$

Select one:

☐ a. $\frac{dy}{dx} = \frac{(y^2 + 6xy)}{3x^2 + 2xy}$

☐ b. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 + 2xy}$

☐ c. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 - 2xy}$

☐ d. $\frac{dy}{dx} = \frac{(y^2 - 6xy)}{3x^2 - 2xy}$

If $y = e^{2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

- ☒ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$
- ☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

Clear my choice

Find $\frac{dy}{dx}$ if $y = x^{\tan x}$

Select one:

- ☐ a. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ b. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$
- ☐ c. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☒ d. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$

Clear my choice

Evaluate $\int \frac{e^{2x} + e^{-2x}}{e^{2x} - e^{-2x}} dx$

Select one:

- ☐ a. $\frac{1}{4} \ln|e^{2x} - e^{-2x}| + C$
- ☐ b. $\frac{1}{2} \ln|e^{2x} + e^{-2x}| + C$
- ☒ c. $\frac{1}{2} \ln|e^{2x} - e^{-2x}| + C$
- ☐ d. $\frac{1}{4} \ln|e^{2x} + e^{-2x}| + C$

Clear my choice

Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$

☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$

☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$

☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

Question 6

Not yet answered

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If $y = e^{2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

- ☐ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$
- ☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

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Differentiate $y = \log(x^3 - x) + 7^{2/3x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$

If $y = e^{2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

- ☐ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$
- ☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

Question 3

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Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$
- ☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

[Back](#)[Time left 0:09:51](#)**Question 1**

Not yet answered

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Evaluate $\int \frac{dx}{x^2 + 4x + 7} dx$

Select one:

- ☐ a. $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x+3}{\sqrt{2}} \right) + C$
- ☐ b. $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{x+2}{\sqrt{3}} \right) + C$
- ☐ c. $\frac{1}{\sqrt{6}} \tan^{-1} \left(\frac{x+7}{\sqrt{6}} \right) + C$
- ☐ d. $\frac{1}{\sqrt{5}} \tan^{-1} \left(\frac{x+6}{\sqrt{5}} \right) + C$

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Question 3

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Find $\frac{dy}{dx}$ if $3x^2y + xy^2 = 5$

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{(y^2 + 6xy)}{3x^2 + 2xy}$
- ☐ b. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 + 2xy}$
- ☐ c. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 - 2xy}$
- ☐ d. $\frac{dy}{dx} = \frac{(y^2 - 6xy)}{3x^2 - 2xy}$

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Question 6

Not yet answered

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Evaluate $\int \cos^3 x dx$

Select one:

- ☐ a. $\sin x - \frac{1}{3} \sin^3 x + C$
- ☐ b. $\cos x + \frac{1}{3} \cos^3 x + C$
- ☐ c. $\sec x - \frac{1}{3} \sec^3 x + C$
- ☐ d. $\tan x - \frac{1}{3} \tan^3 x + C$

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Question 2

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If $y = \int f(x)dx + C$, then $f(x)dx$ is called the —

Select one:

- ☐ a. Definite integral
- ☐ b. finite integral
- ☐ c. indefinite integral
- ☐ d. integrand

If $y = e^{-2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

☐ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$

☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$

☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$

☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

Differentiate $y = \log(x^3 - x) + 7^{1/x}$

Select one:

- ☐ a. $\frac{3x^2-1}{x(x^2-1)} - 7^{1/x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2-1}{x(x^2-1)} - 7^{1/x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2-1}{x(x^2-1)} + 7^{1/x} \left(\frac{2}{3} \log 7 \right)$
- ☒ d. $\frac{3x^2-1}{x(x^2-1)} + 7^{1/x} \left(\frac{2}{3} \log 7 \right)$

Clear my choice

Question 6

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If $y = e^{2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

- ☐ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$
- ☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

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Find $\frac{dy}{dx}$, if $y = \log_e \cos x$

Select one:

- ☐ a. $\cot x$
- ☐ b. $-\cot x$
- ☒ c. $-\tan x$
- ☐ d. $\tan x$

Clear my choice

If $y = \int f(x)dx + C$, then $f(x)dx$ is called the -----

Select one:

- ☐ a. Definite integral
- ☐ b. finite integral
- ☐ c. indefinite integral
- ☒ d. integrand

Clear my choice

Simplify $\int \frac{4x-5}{x^2-x-2} dx$

Select one:

- ☐ a. $\ln|x-1| + \ln|x+2| + C$
- ☐ b. $3\ln|x+1| + \ln|x-2| + C$
- ☐ c. $\ln|x-1| - 2\ln|x-2| + C$
- ☐ d. $4\ln\left|\frac{x-2}{x-1}\right| + C$

Question 4

Not yet answered

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If $y = e^{2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

- ☐ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$
- ☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$
- ☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

Question 8

Not yet answered

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Evaluate $\int \frac{dx}{x^2 + 4x + 7} dx$

Select one:

- ☐ a. $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x+3}{\sqrt{2}} \right) + C$
- ☐ b. $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{x+2}{\sqrt{3}} \right) + C$
- ☐ c. $\frac{1}{\sqrt{6}} \tan^{-1} \left(\frac{x+7}{\sqrt{6}} \right) + C$
- ☐ d. $\frac{1}{\sqrt{5}} \tan^{-1} \left(\frac{x+6}{\sqrt{5}} \right) + C$

Evaluate $\int \frac{dx}{x^2 + 4x + 7} dx$

Select one:

- ☐ a. $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x+3}{\sqrt{2}} \right) + C$
- ☒ b. $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{x+2}{\sqrt{3}} \right) + C$
- ☐ c. $\frac{1}{\sqrt{6}} \tan^{-1} \left(\frac{x+7}{\sqrt{6}} \right) + C$
- ☐ d. $\frac{1}{\sqrt{5}} \tan^{-1} \left(\frac{x+6}{\sqrt{5}} \right) + C$

Find $\frac{dy}{dx}$ if $3x^2y + xy^2 = 5$

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{(y^2 + 6xy)}{3x^2 + 2xy}$
- ☐ b. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 + 2xy}$
- ☐ c. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 - 2xy}$
- ☐ d. $\frac{dy}{dx} = \frac{(y^2 - 6xy)}{3x^2 - 2xy}$

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Simplify $\int \frac{4x-5}{x^2-x-2} dx$

Select one:

- ☐ a. $\ln|x-1| + \ln|x+2| + C$
- ☒ b. $3\ln|x+1| + \ln|x-2| + C$
- ☐ c. $\ln|x-1| - 2\ln|x-2| + C$
- ☐ d. $4\ln\left|\frac{x-2}{x-1}\right| + C$

Clear my choice

If $y = e^{2x} \log(x+6)$, find $\frac{dy}{dx}$

Select one:

☐ a. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$

☐ b. $\frac{dy}{dx} = e^{2x} \left[\frac{1}{x+6} - 2 \log(x+6) \right]$

☐ c. $\frac{dy}{dx} = e^{-2x} \left[\frac{1}{x+6} + 2 \log(x+6) \right]$

☐ d. $\frac{dy}{dx} = e^{-2x} \left[-\frac{1}{x+6} - 2 \log(x+6) \right]$

Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^3 + 2x - 5$ with respect to x

Select one:

☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$

☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$

☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$

☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

If $y = \frac{e^{\tan 2x}}{\cos 2x}$, find $\frac{dy}{dx}$

Select one:

☐ a. $\frac{dy}{dx} = 2e^{\tan 2x} [1 - \sec 2x \tan 2x]$

☐ b. $\frac{dy}{dx} = 2e^{\tan 2x} [1 - \sec 2x \cos 2x]$

☐ c. $\frac{dy}{dx} = 2e^{\tan 2x} [1 + \sec 2x \tan 2x]$

☐ d. $\frac{dy}{dx} = 2e^{\tan 2x} [1 + \sec 2x \cos 2x]$

Question 1

Not yet answered

Marked

Simplify $\int 3x^2 e^{x^3} dx$

Select one:

- ☐ a. $e^{x^3} + C$
- ☐ b. $e^{x^4} + C$
- ☐ c. $e^{x^4} + C$
- ☐ d. $e^{x^3} + C$

Question 1

Not yet answered

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Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$
- ☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

Evaluate $\int \cos^3 x dx$

Select one:

- ☐ a. $\sin x - \frac{1}{3} \sin^3 x + C$
- ☐ b. $\cos x + \frac{1}{3} \cos^3 x + C$
- ☐ c. $\sec x - \frac{1}{3} \sec^3 x + C$
- ☐ d. $\tan x - \frac{1}{3} \tan^3 x + C$

Question 9

Not yet answered

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🚩 **Flag question**

Find $\frac{dy}{dx}$, if $y = \log_e \cos x$

Select one:

- ☐ a. $\cot x$
- ☐ b. $-\cot x$
- ☐ c. $-\tan x$
- ☐ d. $\tan x$

Simplify $\int 3x^2 e^{x^3} dx$

Select one:

☐ a. $e^{x^3} + C$

☐ b. $e^{x^3} + C$

☐ c. $e^{x^3} + C$

☐ d. $e^{x^3} + C$

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Question 7

Not yet answered

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Differentiate $y = \log(x^3 - x) + 7^{2/3x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$

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Finish attempt ...



Differentiate $y = \log(x^3 - 8) + 7^{3x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{3x} \left(\frac{2}{3} \log 7 \right)$

Evaluate $\int \cos^3 x dx$

Select one:

☐ a. $\sin x - \frac{1}{3} \sin^3 x + C$

☐ b. $\cos x + \frac{1}{3} \cos^3 x + C$

☐ c. $\sec x - \frac{1}{3} \sec^3 x + C$

☐ d. $\tan x - \frac{1}{3} \tan^3 x + C$

Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$
- ☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☒ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

Clear my choice

Differentiate $y = \log(x^3 - x) + 7^{\frac{2}{3}x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☒ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$

Clear my choice

Evaluate $\int \frac{dx}{x^2 + 4x + 7} dx$

Select one:

☐ a. $\frac{1}{\sqrt{5}} \tan^{-1}\left(\frac{x+2}{\sqrt{5}}\right) + C$

☒ b. $\frac{1}{\sqrt{5}} \tan^{-1}\left(\frac{x+2}{\sqrt{5}}\right) + C$

☐ c. $\frac{1}{\sqrt{5}} \tan^{-1}\left(\frac{x+7}{\sqrt{5}}\right) + C$

☐ d. $\frac{1}{\sqrt{5}} \tan^{-1}\left(\frac{x+5}{\sqrt{5}}\right) + C$

Which of the following equation is not correct?

Select one:

- ☐ a. $\int_a^a f(x) dx = 0$
- ☐ b. $\int_a^b f(x) dx = \int_b^a f(x) dx$
- ☐ c. $\left| \int_a^b f(x) dx \right| \leq \int_a^b |f(x)| dx$ if $a < b$
- ☐ d. $\int_a^b f(x) dx \leq \int_a^b g(x) dx$ if $f(x) \leq g(x)$ in $[a, b]$

Question 2

Not yet answered

Marked out of 1

🚩 **Flag question**

Find $\frac{dy}{dx}$, if $y = \log_e \cos x$

Select one:

- ☐ a. $\cot x$
- ☐ b. $-\cot x$
- ☐ c. $-\tan x$
- ☐ d. $\tan x$

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Question 5

Not yet answered

Marked out of 1

🚩 **Flag question**

Differentiate $y = \log(x^3 - x) + 7^{\frac{2}{3}x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{\frac{2}{3}x} \left(\frac{2}{3} \log 7 \right)$

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Differentiate $y = \log(x^3 - x) + 7^{2/3x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$

Find $\frac{dy}{dx}$, if $y = \log_e \cos x$

Select one:

- ☐ a. $\cot x$
- ☐ b. $-\cot x$
- ☐ c. $-\tan x$
- ☐ d. $\tan x$

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[Back](#)[Time left 0:07:47](#)**Question 4**

Not yet answered

Marked out of 1

[Flag question](#)

Evaluate $\int \frac{e^{2x} + e^{-2x}}{e^{2x} - e^{-2x}} dx$

Select one:

- ☐ a. $\frac{1}{4} \ln|e^{2x} - e^{-2x}| + C$
- ☐ b. $\frac{1}{2} \ln|e^{2x} + e^{-2x}| + C$
- ☐ c. $\frac{1}{2} \ln|e^{2x} - e^{-2x}| + C$
- ☐ d. $\frac{1}{4} \ln|e^{2x} + e^{-2x}| + C$

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INFORMATICS | DENTAL SCIENCES | EDUCATION)

[Back](#)[Time left 0:05:21](#)**Question 9**

Not yet answered

Marked out of 1

[Flag question](#)

Find $\frac{dy}{dx}$, if $y = \log_e \cos x$

Select one:

- ☐ a. $\cot x$
- ☐ b. $-\cot x$
- ☐ c. $-\tan x$
- ☐ d. $\tan x$

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Question 5

Not yet answered

Marked out of

Find $\frac{dy}{dx}$ If $y = x^{\tan x}$

Select one:

- ☐ a. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ b. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$
- ☐ c. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ d. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$

**Question 8**

Not yet answered

Marked out

Find $\frac{dy}{dx}$ If $x^{\tan x}$

Select one:

- ☐ a. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ b. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$
- ☐ c. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ d. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$



Question 7

Not yet answered

Marked 0

Differentiate $y = \log(x^3 - x) + 7^{2/3x}$

Select one:

- ☐ a. $\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ b. $-\frac{3x^2 - 1}{x(x^2 - 1)} - 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☐ c. $-\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{-2/3x} \left(\frac{2}{3} \log 7 \right)$
- ☒ d. $\frac{3x^2 - 1}{x(x^2 - 1)} + 7^{2/3x} \left(\frac{2}{3} \log 7 \right)$

Clear my choice

Question 6

Not yet answered

Marked

Find $\frac{dy}{dx}$, if $y = \log_e \cos x$

Select one:

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- ☐ a. $\cot x$
- ☐ b. $-\cot x$
- ☒ c. $-\tan x$
- ☐ d. $\tan x$

Clear my choice

Question 5

Not yet answered

Evaluate $\int \frac{e^{2x} + e^{-2x}}{e^{2x} - e^{-2x}} dx$

Select one:

- ☐ a. $\frac{1}{4} \ln|e^{2x} - e^{-2x}| + C$
- ☐ b. $\frac{1}{2} \ln|e^{2x} + e^{-2x}| + C$
- ☐ c. $\frac{1}{2} \ln|e^{2x} - e^{-2x}| + C$
- ☐ d. $\frac{1}{4} \ln|e^{2x} + e^{-2x}| + C$



Question 4

Not yet answered

Evaluate $\int \cos^3 x dx$

Select one:

- ☐ a. $\sin x - \frac{1}{3} \sin^3 x + C$
- ☐ b. $\cos x + \frac{1}{3} \cos^3 x + C$
- ☐ c. $\sec x - \frac{1}{3} \sec^3 x + C$
- ☐ d. $\tan x - \frac{1}{3} \tan^3 x + C$



Question 3

Not yet answered

Obtain $\frac{d}{dx} \left\{ \ln \left(\frac{x^2}{x^2 + 1} \right) \right\}$

Select one:

- ☒ a. $\frac{2}{x(x^2 + 1)}$
- ☐ b. $-\frac{2}{x(x^2 + 1)}$
- ☐ c. $-\frac{5}{x(x^2 + 1)}$
- ☐ d. $\frac{5}{x(x^2 + 1)}$

[Clear my choice](#)

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Question 3

Not yet answered

Obtain $\frac{d}{dx} \left\{ \ln \left(\frac{x^2}{x^2 + 1} \right) \right\}$

Select one:

- ☒ a. $\frac{2}{x(x^2 + 1)}$
- ☐ b. $-\frac{2}{x(x^2 + 1)}$
- ☐ c. $-\frac{5}{x(x^2 + 1)}$
- ☐ d. $\frac{5}{x(x^2 + 1)}$

Clear my choice

Question 2

Not yet answered

M

Find $\frac{dy}{dx}$ if $3x^2y + xy^2 = 5$

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{(y^2 + 6xy)}{3x^2 + 2xy}$
- ☐ b. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 + 2xy}$
- ☐ c. $\frac{dy}{dx} = \frac{-(y^2 + 6xy)}{3x^2 - 2xy}$
- ☐ d. $\frac{dy}{dx} = \frac{(y^2 - 6xy)}{3x^2 - 2xy}$



Question 1

Not yet answered

Ma

Evaluate $\int \frac{dx}{x^2 + 4x + 7} dx$

Select one:

- ☐ a. $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x+3}{\sqrt{2}} \right) + C$
- ☐ b. $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{x+2}{\sqrt{3}} \right) + C$
- ☐ c. $\frac{1}{\sqrt{6}} \tan^{-1} \left(\frac{x+7}{\sqrt{6}} \right) + C$
- ☐ d. $\frac{1}{\sqrt{5}} \tan^{-1} \left(\frac{x+6}{\sqrt{5}} \right) + C$



Question 1

Not yet answered

Marked out of 1

Evaluate $\int \cos^3 x dx$

Select one:

- ☐ a. $\sin x - \frac{1}{3} \sin^3 x + C$
- ☐ b. $\cos x + \frac{1}{3} \cos^3 x + C$
- ☐ c. $\sec x - \frac{1}{3} \sec^3 x + C$
- ☐ d. $\tan x - \frac{1}{3} \tan^3 x + C$

Question 2

Not yet answered

Marked out of 1

 **Flag question**

Differentiate the implicit functions $x^2 \sin y - e^{2y} \cos x = 3x^2 + 2x - 5$ with respect to x

Select one:

- ☐ a. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y + 2 \cos x e^{2y}}$
- ☐ b. $\frac{dy}{dx} = \frac{6x + 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ c. $\frac{dy}{dx} = \frac{6x - 2x \sin y - \sin x e^{2y} + 2}{x^2 \cos y - 2 \cos x e^{2y}}$
- ☐ d. $\frac{dy}{dx} = \frac{-6x - 2x \sin y - \sin x e^{2y} - 2}{x^2 \cos y - 2 \cos x e^{2y}}$

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Question 3

Not yet answered

Marked out of 1

Find $\frac{dy}{dx}$ If $y = x^{\tan x}$

Select one:

- ☐ a. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ b. $\frac{dy}{dx} = -x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$
- ☐ c. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} - \sec^2 x |\ln x| \right)$
- ☐ d. $\frac{dy}{dx} = x^{\tan x} \left(\frac{\tan x}{x} + \sec^2 x |\ln x| \right)$

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