Question 1

1 / 1 pts

Solve the differential equation $\frac{dy}{dx} = x^3 e^{-y}$ with the initial condition of $y(0) = \frac{1}{2}$ for y.

Solve the differential equation $\frac{dy}{dx} = x^3 e^{-y}$ with the initial condition of $y(0) = \frac{1}{2}$ for y.

Note: Two versions will be given to avoid misunderstandings, the text version (black) and the image version (blue). If the two contents conflict, please refer to the image version first.

$y = \ln\left(\frac{1}{4}x^4 + e^{\frac{1}{2}}\right)$

◉ $y = \ln\left(\frac{1}{4}x^4 + e^{\frac{1}{2}}\right)$

$y = \ln\left(\frac{1}{4}x^4 + \frac{1}{2}e\right)$

○ $y = \ln\left(\frac{1}{4}x^4 + \frac{1}{2}e\right)$

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

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

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

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

Question 2

1 / 1 pts

A sinusoidal function has an amplitude of $2\sqrt{2}$, a frequency of 3 and phase of $\frac{2\pi}{5}$. State a sinusoidal form of the function.

A sinusoidal function has an amplitude of $2\sqrt{2}$, a frequency of 3 and phase of $\frac{2\pi}{5}$. State a sinusoidal form of the function.

Note: Two versions will be given to avoid misunderstandings, the text version (black) and the image version (blue). If the two contents conflict, please refer to the image version first.

$2\sqrt{2}sin(6\pi t + \frac{2\pi}{5})$

- ◉ $2\sqrt{2}\sin(6\pi t + \frac{2\pi}{5})$

$2\sqrt{2}sin(\frac{2\pi}{3}t + \frac{2\pi}{5})$

- ○ $2\sqrt{2}\sin(\frac{2\pi}{3}t + \frac{2\pi}{5})$

$8sin(6\pi t + \frac{2\pi}{5})$

- ○ $8\sin(6\pi t + \frac{2\pi}{5})$

$8sin(\frac{2\pi}{3}t + \frac{2\pi}{5})$

- ○ $8\sin(\frac{2\pi}{3}t + \frac{2\pi}{5})$

Question 3

1 / 1 pts

Evaluate $\int cos^3 x dx$.

Evaluate $\int \cos^3 x \, dx$

Note: Two versions will be given to avoid misunderstandings, the text version (black) and the image version (blue). If the two contents conflict, please refer to the image version first.

$\frac{cos^3 x}{3} + c$

$\frac{\cos^3 x}{3} + c$

$sinx \frac{cos^3 x}{3} + c$

$\sin x \cdot \frac{\cos^3 x}{3} + c$

$-sinx \frac{cos^3 x}{3} + c$

$-\sin x \cdot \frac{\cos^3 x}{3} + c$

$sinx - \frac{sin^3 x}{3} + c$

$\sin x - \frac{\sin^3 x}{3} + c$