

CALCULUS I
FINAL EXAM

24/12/2019

* SOLVE 3 questions.

$$1) \frac{F}{x} = \frac{1}{\int_5^{x^2} \frac{\sin t dt}{t}}$$

Find $\frac{dF}{dx}$ 

$$2) \int_{-4}^4 x^3 e^x dx = ?$$

line

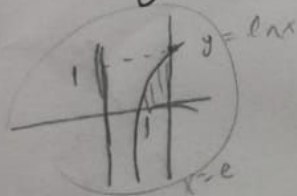
$$\begin{array}{rcl} + x^3 & \rightarrow & e^x \\ - 3x^2 & \rightarrow & e^x \\ + 6x & \rightarrow & e^x \\ - 6 & \rightarrow & e^x \\ 0 & \rightarrow & e^x \end{array}$$

u' =

3) At the first quadrant the region is bounded by $y = \ln x$, the line $x = e$, and x -axis. Find area of given region.

we have $= \int_a^b f(x) dx$

4) The region given above in the 3rd question is rotated about the line $x = e$. Find volume of generated solid.



GOOD LUCK...

45 min.

Emre GÜVEN

$$\int_0^1 (e^y - e)^2 dy =$$

$$\frac{e^{y^2+1}}{y^2+1}$$

$$2e^{y+1} + e^2 dy$$

$$= 2 \frac{e^{y+1}}{y+1}$$

$$\frac{23}{x} \cdot \frac{1}{2} \cdot \frac{1}{2}$$