COMP. ENG.

CALCULUS 1

18/11/2017

1) $y = \dfrac{1}{\int_{x^2}^{\ln x} \frac{\sin t}{t}\,dt}$ $\quad \dfrac{dy}{dx} = ?$ → Leibniz

$f(x) = \int_{u(x)}^{v(x)} f(t)\,dt$

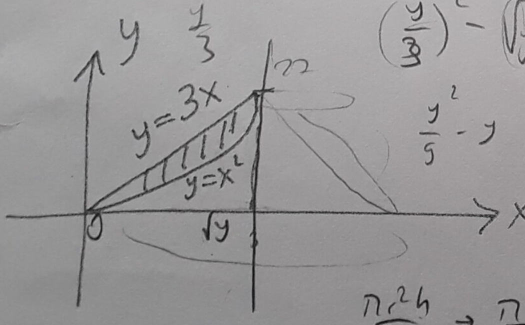
integral

$f'(x) = f(v(x)) \cdot v'(x) - f(u(x)) \cdot u'(x)$

2) $\int_{-10}^{10} x\, e^{(x)^4}\,dx = ?$

$u = e^{(x)^4}$

$\ln u =$

3) 

$\left(\frac{y}{3}\right)^2 - (\sqrt{y})^2$

Shaded area is rotated about the line $x=3$. Find the volume of generated solid.

$\frac{\pi r^2 h}{3} \to \frac{\pi \cdot 9 \cdot 9}{3} = 27\pi$

$\frac{y^3}{27} - \frac{y^2}{2}$

we can use dct

4) Evaluate $\displaystyle\int_{-\infty}^{\infty} \frac{dx}{1+x^2}$, $\displaystyle\int_{-\infty}^{a} \frac{dx}{1+x^2} + \int_{a}^{\infty} \frac{dx}{1+x^2}$

$\frac{1}{x^2} = \frac{x^{-1}}{-1}$

x^{-2}

GOOD LUCK...

40 min.

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