



Name: _____

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Calculus II (Maths 201–NYB)

Quiz 2
(version A)

1. Evaluate the following integral:

$$\int \frac{x^2 + x - 1}{(x + 1)(x^2 - 1)} dx$$

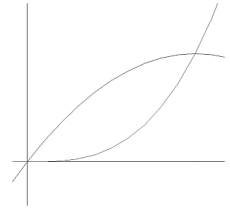
2. Evaluate the limit $\lim_{x \rightarrow 0} (1 + \sin 3x)^{(1/x)}$

3. Find the arclength of the curve $y = \frac{1}{2}x^2 - \frac{1}{4}\ln(x)$ from $x = 2$ to $x = 4$.

4. Solve the differential equation, giving your answer as an explicit function $y = f(x)$:

$$3e^x y^2 y' = x, \quad y(0) = 0$$

5. Find the volume of the solid obtained when the region above the x -axis, between the curves $y = 2x - x^2$ and $y = x^3$, is rotated about the y -axis.



Answers

1. $\frac{3}{4} \ln|x+1| - \frac{1}{2(x+1)} + \frac{1}{4} \ln|x-1| + C$

2. e^3

3. $6 + \frac{1}{4} \ln 2$

4. $y = \sqrt[3]{1 - x e^{-x} - e^{-x}}$

5. $\frac{13\pi}{30}$