

MATH-119

WEEK 7

RECITATION QUESTIONS

1. A table of values of an increasing function f is shown. Use the table to find lower and upper estimates for $\int_0^{25} f(x) dx$

x	0	5	10	15	20	25
$f(x)$	-42	-37	-25	-6	15	36

2. Find the derivative of the function.

$$g(x) = \int_{\tan x}^{x^2} \frac{1}{\sqrt{2+t^4}} dt$$

3. Evaluate the limit by first recognizing the sum as a Riemann sum for a function defined on $[0,1]$.

$$\lim_{n \rightarrow \infty} \frac{1}{n} \left(\sqrt{\frac{1}{n}} + \sqrt{\frac{2}{n}} + \sqrt{\frac{3}{n}} + \dots + \sqrt{\frac{n}{n}} \right)$$

4. Evaluate the indefinite integral.

$$\int \sec 2\theta \tan 2\theta d\theta$$

5. Evaluate the definite integral

$$\int_0^2 \sqrt[3]{x^3 + 1} x^5 dx$$

6. Evaluate the definite integral, if it exists.

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{x^2 \sin x}{1+x^6} dx$$