King Fahd University of Petroleum and Minerals
Quiz 1 Math 102-101 Duration 25 minutes

Full Name:
ID:
Section:

Question 1 Using four rectangles and left endpoints to approximate the area under the graph of $f(x) = x\sin x$ from $x = 0$ to $x = \pi$.

Question 2 Evaluate

$$\int_{-\pi}^{\pi} (4 + 3\sin x)\sqrt{\pi^2 - x^2}\, dx.$$

Hint: You may split this integral into two parts and interpret one of them as an area.

Question 3 Determine the region whose area is equal to:

$$\lim_{n\to\infty}\sum_{i=1}^{n}\left(\frac{1}{n}+\frac{i}{n^2}+\frac{1}{n}\mathrm{e}^{(1+\frac{i}{n})^2}\right).$$

Question 4 Find the equation of the tangent line to the graph of

$$f(x)=\int_{\sqrt{x}}^{x^3}\mathrm{e}^{u^2}\,du$$

at $x=1$.