Math 102

Name:

Quiz#3

Serial No.:

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1. Find the average value of $f(x) = \sin 2x \sin 3x$ on the interval $[0, \pi]$.

2. The region bounded by $y = \cos^4 x$, $y = -\cos^4 x$ and in the interval $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$ is rotating about $x = \pi$. Find the volume of the resulted solid.
(Just set up the integration formula)

3. Evaluate $I = \int e^{-\theta} \cos 2\theta \, d\theta$.

4. Evaluate $I = \int \; x \; \tan^{-1} x \, dx$

5. Evaluate $\int \; \sqrt{x^2 + 2x} \, dx$

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1. Find the average value of $f(x) = \cos 2x \cos 3x$ on the interval $[0, \pi]$.

2. The region bounded by $y = x^3$, $y = 0$ and $x = 1$ is rotating about $y = 1$. Find the *volume* of the resulted solid.

   (Just set up the integration formula)

3. Evaluate $I = \int e^{-\theta} \sin 2\theta \, d\theta$.

4. Evaluate $\int_1^2 x \sec^{-1} x \, dx$

5. Evaluate $\int \sqrt{x^2 + 2x} \, dx$