Math 102 Name:

Quiz#2&3 Serial No.:

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1. Evaluate $I = \int_1^e \frac{1}{x(1+2\ln x)^2}\,dx$.

2. Let $F(x) = \int_1^x f(z)dz,$ where $f(x) = \int_1^{x^2} \frac{\sqrt{1+u^2}}{u}\,du$. Find F' (1).

3. Find the volume of the solid if the region enclosed by the graph of $y = e^x$, the $x-$axis, $x = 1$, $x = 3$ is revolved about: (Just set up the integral formula)

   A. the line $y = -2$.

   B. the $y-$axis

4. If a velocity function of moving particle is given by $v(t) = t^2 - 4t + 3$ (in meter per second), find the distance travelled during the interval $t \in [2,4]$.

5. Find the value of $I = \int_{-2}^{0} (x+1)^9 \tan(x+1)\, dx$.

6. The base of a solid is a triangular region bounded by the lines y = x; y = 1; and x = 0. If the cross-sections of the solid perpendicular to the y-axis are semi-circles with diameters running across the base of the solid, find the volume of the solid.