

Math 101, Spring 2008: Two more homework questions due April 11

1) Evaluate the integral

$$\int \left(\sqrt{1 + \sin^2(x-1)} \sin(x-1) \cos(x-1) \right) dx$$

using the following sequences of substitutions:

a) $u = x - 1$, followed by $v = \sin u$, then by $w = 1 + v^2$.

b) $u = \sin(x - 1)$, followed by $v = 1 + u^2$.

c) $u = 1 + \sin^2(x - 1)$.

2) Evaluate the integral

$$\int \frac{\sin \sqrt{\theta} d\theta}{\sqrt{\theta} \cos^3 \sqrt{\theta}}$$