

Math 250a (Kennedy) - Quiz 2 - Fall '07

1. Find

$$\int \frac{\ln z}{z} dz$$

sub  $u = \ln z$

$$= \frac{1}{2} (\ln |z|)^2 + C$$

$$\int \sin^3(2\theta) \cos(2\theta) d\theta$$

sub  $u = \sin(2\theta)$

$$= \frac{1}{8} \sin^4(2\theta) + C$$

$$\int_0^4 \frac{\cos(\sqrt{x})}{\sqrt{x}} dx$$

sub  $u = \sqrt{x}$

$$= 2 \sin \sqrt{x} \Big|_0^4 = 2 \sin(2)$$

2. ~~Suppose  $\int_0^1 g(x) dx = 2$ . Find  $\int_0^2 g((1-x)/2) dx$ .~~

DROP

3. Find the derivative with respect to  $x$  of each of the following

$$\int_0^x \ln(u^2 + u) du$$

$$x^2 + x$$

$$\int_{-1}^{e^x} \cos(\theta^2) d\theta$$

$$\cos((e^x)^2) e^x = \cos(e^{2x}) e^x$$