

5.5 (p 359) #82 Area enclosed by

$$y = 3^{\cos x} \sin x$$

$$y = 0, x = 0, x = \pi$$

$$= \int_0^{\pi} 3^{\cos x} \sin x dx$$

$$u = \cos x$$

$$- du = -\sin x dx$$

$$u(0) = 1$$

$$u(\pi) = -1$$

$$= \int_1^{-1} 3^u du = \int_{-1}^1 3^u du = \frac{1}{\ln 3} 3^u \Big|_{-1}^1$$
$$= \frac{3 - \frac{1}{3}}{\ln 3} = \frac{8}{\ln 27}$$

