

Quiz 1 MATH 2502 Spring 2019

$$\int_{\pi/2}^{\pi} \cos^2(\theta) \sin(\theta) d\theta$$
$$= - \int_0^{-1} u^2 du$$

$$= - \left. \frac{u^3}{3} \right|_0^{-1}$$
$$= - \left[ \frac{(-1)^3}{3} - \frac{0^3}{3} \right]$$

$$= \frac{1}{3}$$

$$u = \cos(\theta)$$

$$du = -\sin(\theta) d\theta$$

$$-du = \sin(\theta) d\theta$$

upper bound:  $x = \pi \rightarrow u = \cos(\pi) = -1$

lower bound:  $x = \pi/2 \rightarrow u = \cos(\pi/2) = 0$