

# Quiz 3

## Math 252

Name:

Show *all* your work (algebraically or geometrically) for each and simplify. No credit is given without supporting work.

1. [6] Evaluate the following or explain why it may not exist.

$$\int_{-1}^3 \frac{1}{x} dx$$

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{x^2 \sin x}{1+x^6} dx$$

$$\int_0^{\frac{\pi}{3}} \tan \theta d\theta$$

2. [4] The rate of air flow into the lungs can be modeled with the function  $f(t) = \frac{1}{2} \sin\left(\frac{2\pi t}{5}\right)$ . Use this model to find the volume of inhaled air in the lungs at time  $t$ .