

**Instructions:** Show Your Work!

(3pts) 1. Evaluate the integral

$$\int_0^{\frac{\pi^2}{4}} \cos \sqrt{x} \, dx.$$

(3pts) 2. Evaluate the integral

$$\int_{\frac{5\pi}{6}}^{\pi} \frac{\cos^4 x}{\sqrt{1 - \sin x}} \, dx.$$

**Hint:** Multiply by

$$\sqrt{\frac{1 + \sin x}{1 + \sin x}}$$

(4pts) 3. Evaluate the integral

$$\int \frac{\sqrt{x^2 - 25}}{x^3} \, dx, \quad x > 5.$$