

Quiz 6

Math 252

$$\begin{aligned}\sin 2x &= 2 \sin x \cos x \\ \sin^2 x &= \frac{1}{2}(1 - \cos 2x)\end{aligned}$$

$$\begin{aligned}\cos 2x &= \cos^2 x - \sin^2 x \\ \cos^2 x &= \frac{1}{2}(1 + \cos 2x)\end{aligned}$$

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

1. [4] Find ONLY ONE of the following. Indicate clearly which one you want graded by completely crossing out the problem you do not want graded.

$$\int \frac{\cos^5 \alpha}{\sqrt{\sin \alpha}} d\alpha$$

$$\int \sin^4 x dx$$

2. [6] Find ONLY TWO of the following. Indicate clearly which two you want graded by completely crossing out the problem you do not want graded.

$$\int \arctan 4t \, dt$$

$$\int x^2 \ln x \, dx$$

$$\int r e^{\frac{r}{2}} \, dr$$