

## Math 199 CD3 Merit Worksheet 2: Trig Integration and Trig Sub

January 27, 2022

1.

$$\int \cos^2(ax) dx$$

2.

$$\int \sin^2(ax) dx$$

3.

$$\int \cos^4 x \sin^2 x dx$$

4.

$$\int \tan^2 \frac{x}{2} dx$$

5.

$$\int \sin(\pi x) \cos(3\pi x) dx$$

Hint: Use the following trig identity:

$$\sin(Ax) \cos(Bx) = \frac{1}{2} [\sin(A+B)x + \sin(A-B)x]$$

6.

$$\int \frac{dx}{(4-x^2)^{3/2}}$$

7.

$$\int \frac{dx}{(x^2+9)^2}$$