Math 121, Section 01, Spring 2022

Homework #7

Due **NOW FRIDAY, March 4th** in Gradescope by 11:59 pm ET

Goal: Exploring Trigonometric Integrals and Trigonometric Substitution

Compute each of the following Integrals. Simplify.

1. $\int \sin^2 x \cos^3 x \; dx$

2. $\int_0^{\frac{\pi}{2}} \sin^5 x \; dx$

3. $\int_0^{\frac{\pi}{2}} \cos^2 \theta \; d\theta$

4. $\int_0^{\frac{\pi}{2}} \sin^2 x \cos^2 x \; dx$

5. $\int x \sin^2 x \; dx$

6. $\int_0^1 x^3 \sqrt{1-x^2} \; dx$ using Trigonometric Substitution

7. $\int \sqrt{9-x^2} \; dx$

8. $\int \frac{1}{(4+x^2)^{\frac{5}{2}}} \; dx$

9. $\int x \arcsin x \; dx$

REGULAR OFFICE HOURS

Sunday: 6–7:30 pm TA Nico, SMUDD 207

Monday: 1:00–3:00 pm

6–7:30 pm TA Daksha, SMUDD 207

7:30–9:00 pm TA Karime, SMUDD 207

Tuesday: 12:00–4:00 pm

6–7:30 pm TA Ian, SMUDD 207

7:30–9:00 pm TA Nico, SMUDD 207

Wednesday: 1:00-3:00 pm

9–10:30 pm TA Daksha, SMUDD 207

Thursday: none for Professor

6–7:30 pm TA Ian, SMUDD 207

7:30–9:00 pm TA Karime, SMUDD 207

Friday: 12:00–2:00 pm

This is the end of exam #1 material

Go to office hours and also go to Math Fellow TA hours

with Nico, Ian, Karime, or Daksha