

Homework #7

Due **Wednesday, September 22nd** 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

Monday: 1:00–3:00 pm

9–10:30 pm TA Mia, SMUDD 207

Tuesday: 12:00–4:00 pm

6–7:30 pm TA Ian, SMUDD 207

7:30–9:00 pm TA Karime, SMUDD 207

Wednesday: 1:00–3:00 pm

6–7:30 pm TA Ian, SMUDD 207

7:30–9:00 pm TA Daksha, SMUDD 207

Thursday: none for Professor

1–2:30 pm TA Mia, SMUDD 207

7:30–9:00 pm TA Daksha, SMUDD 207

Friday: 12:00–2:00 pm

2:30–4:00 pm TA Karime, SMUDD 014**

This is the end of exam #1 material
Go to office hours and also go to Math Fellow TA hours
with Mia, Ian, Karime, or Daksha