Math 121, Sections 01, 02, 03, Fall 2021

Homework #22

Due **Tuesday, December 7th** in Gradescope by 11:59 pm ET

Goal: Computing Area bounded by Polar curves.

For **all** problems below, **sketch** the Polar curve(s) and **shade** the described bounded region.

1. Find the Area enclosed by $r = 1 - \sin\theta$.

2. Set-Up but **DO NOT EVALUATE** another slightly different Integral representing the same area of the described bounded region in #1.

3. Find the Area inside $r = 4\sin\theta$ and outside $r = 2$

4. Set-Up but **DO NOT EVALUATE** another slightly different Integral representing the same area of the described bounded region in #3.

5. Find the Area inside $r = 3\cos\theta$ and outside $r = 1 + \cos\theta$

6. Set-Up but **DO NOT EVALUATE** another slightly different Integral representing the same area of the described bounded region in #5.

7. Find the Area of the region that lies inside both curves $r = 1 + \cos\theta$ and $r = 1 - \cos\theta$.

8. Set-Up but **DO NOT EVALUATE** another slightly different Integral representing the same area of the described bounded region in #7.

9. Find the Area of the region that lies inside both curves $r = 3 + 2\cos\theta$ and $r = 3 + 2\sin\theta$. Use the Cartesian coordinate plot to help sketch the Polar curves.

10. Set-Up but **DO NOT EVALUATE** another slightly different Integral representing the same area of the described bounded region in #9.

Last One!!!

We made it!!

Thank you so much for working hard.

I really appreciate it!

REGULAR OFFICE HOURS

Monday: 1:00–3:00 pm

9–10:30 pm TA Mia, SMUDD 207

Tuesday: 1:00–3:00 pm Note Change

6–7:30 pm TA Ian, SMUDD 207

7:30–9:00 pm TA Karime, SMUDD 207

Organize your study schedule for the Final Exam.