

Midterm 1

Examination time: 8:45 -10:15 pm. No electronic devices, books, or notes are allowed.

Name _____

Student ID# _____

TA Name _____

Recitation # _____

Problem	1	2	3	4
Points				
Total	10	10	10	10

Problem	5	6	7	8	Total
Points					
Total	15	15	15	15	100

MAT 126	Calculus B				
LEC 01	TuTh	10:00am-11:20am	Simons Centr	103	Yaar Solomon
R01	F	10:00am-10:53am	Library	E4310	Yu Zeng
R03	Tu	1:00pm- 1:53pm	Mathematics	P131	Joseph Thurman
R04	Th	4:00pm- 4:53pm	Mathematics	P131	Mariangela Ferraro
R05	W	5:30pm- 6:23pm	Library	W4530	Alaa Abd-El-Hafez
R19	W	4:00pm- 4:53pm	Earth and Space	069	Alaa Abd-El-Hafez
LEC 02	MWF	10:00am-10:53am	Simons Centr	103	David Kahn*
R06	M	12:00pm-12:53pm	Harriman	112	Deb Wertz
R07	Th	10:00am-10:53am	Library	W4535	Cameron Crowe
R08	Tu	8:30am- 9:23am	Library	W4525	Charles Cifarelli
R17	Tu	4:00pm-4:53pm	Harriman	112	Thomas Rico
R18	Tu	5:30pm-6:23am	Physics	P127	Thomas Rico
LEC 03	TuTh	5:30pm- 6:50pm	Engineering	145	Oleksandr Tsymbaliuk
R12	M	5:30pm- 6:23pm	Earth and Space	079	Mariangela Ferraro
R13	M	4:00pm- 4:53pm	Library	W4535	Jack Burkart
R14	Th	2:30pm- 3:23pm	Lgt Engr Lab	152	Yu Zeng
R16	Th	7:00pm- 7:53pm	Library	E4310	Joseph Thurman

Some useful information:

	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	0	-1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	-1	0
tan	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	und	0	und

$$\sin^2 x + \cos^2 x = 1$$

$$1 + \tan^2 x = \sec^2 x$$

$$1 + \cot^2 x = \csc^2 x$$

$$\cot x = \frac{1}{\tan x}$$

$$\sec x = \frac{1}{\cos x}$$

$$\csc x = \frac{1}{\sin x}$$

Please show all of your work.

1) $\int \sin^2(4x) dx =$

Answer (10 points)

Please show all of your work.

2) $\int_0^{\frac{\pi}{2}} \sin^5 x \cos^3 x \, dx =$

Answer (10 points)

Please show all of your work.

3) $\int \frac{8x-7}{x^2-x-2} dx =$

Answer (10 points)

Please show all of your work.

4) Evaluate $\int_2^{\infty} \frac{dt}{t^3}$.

(If the integral diverges, simply writing “Diverges” with no explanation or work will result in no credit.)

Answer (10 points)

Please show all of your work.

5) $\int \sec^4 x \, dx =$

Answer (15 points)

Please show all of your work.

6) $\int_4^{12} \frac{dx}{\sqrt[3]{x-4}} =$

Answer (15 points)

Please show all of your work.

7) $\int \frac{x^2 - x - 6}{(x^2 + 1)(2x - 1)} dx =$

Answer (15 points)

Please show all of your work.

8) The region R in the first quadrant is bounded by $y = 4 - x^2$ and $y = 4 - 2x$.

Sketch the region R (3 points).

Find the area of R (12 points).

Answer (15 points)

