Stony Brook University MAT 126 Calculus B
Dept. of Mathematics Sept. 30, 2015

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	5	6
Points						
Total	10	10	10	10	10	10

Problem	7	8	9	10	Total
Points					
Total	10	10	10	10	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) Approximate the area between the graph of $y = x^2 + 6$ and the *x*-axis, on the interval $[-2,3]$ using $n = 5$:

a) Left Endpoint Rectangles

Answer (5 points)

b) Right Endpoint Rectangles

Answer (5 points)

Please show all of your work.

2) $\int_{-2}^{3} \left(x^2 + 6\right) dx =$

Answer (10 points)

3) If $f(x) = \int \left(e^x + \pi x\right) dx$ and $f(0) = 2$, find $f(x)$.

Answer (10 points)

Please show all of your work.

4) Find $\frac{d}{dx}\int_{\cos x}^{\sin x} e^{3t}dt$

Answer (10 points)

5) $\int x\sqrt[3]{5-2x^2}dx =$

Please show all of your work.

6) $\int x \sin 5x \, dx =$

Answer (10 points)

Please show all of your work.

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

Answer (10 points)

8) $\int_1^{e^2} x \ln x \, dx =$

Answer (10 points)

Please show all of your work.

9) $\int \frac{\sec^2 x - \sec^2 x \sin^2 x}{\cos^2 x}\, dx =$

Answer (10 points)

Please show all of your work.

10) $\int e^x \sin(2x)\, dx =$

Answer (10 points)