

Stony Brook

STATE UNIVERSITY OF NEW YORK

MAT 126 Midterm 2 – Spring 2017

Problem	1	2	3	4	5	6	7	8	9	Total
Score										

Last Name: _____ First Name: _____

Recitation #: _____ (See below for your recitation number)

Directions: Answer all questions in the space provided. You may use the blank backs of pages for scrap. No other paper is permitted. Show ALL relevant work. Calculators are not to be used. Circle your final answers.

R01	F	12:00pm-12:53pm	Library	E4320	Shaosai Huang
R02	Tu	4:00pm- 4:53pm	Library	E4320	Alaa Abd-El-Hafez
R03	Tu	5:30pm- 6:23pm	Library	E4320	Alaa Abd-El-Hafez
R04	Th	8:30am- 9:23am	Library	E4310	Selin Taşkent
R05	M	1:00pm- 1:53pm	Library	E4310	Marlon de Oliveira Gomes
R06	M	9:00am- 9:53am	Mathematics	P131	Ruijie Yang
R07	W	11:00am-11:53am	Library	E4330	Yuhan Sun
R21	Tu	8:30am- 9:23am	Library	E4310	Selin Taşkent
R22	Th	1:00pm- 1:53pm	Library	E4310	Deb Wertz
R23	F	1:00pm- 1:53pm	Library	E4310	Gaurish Telang
R24	W	12:00pm-12:53pm	Mathematics	P131	Yuhan Sun
R25	M	10:00am-10:53am	Lgt Engr Lab	154	Hang Yuan
R26	M	12:00pm-12:53pm	Library	E4330	Marlon de Oliveira Gomes
R30	W	9:00am- 9:53am	Mathematics	P131	Ruijie Yang
R31	Tu	10:00am-10:53am	Humanities	3017	Santai Qu
R32	W	10:00am-10:53am	Library	N4000	Chandrika Sadanand
R33	Th	4:00pm- 4:53pm	Library	N4000	Shaosai Huang
R34	W	5:30pm- 6:23pm	Earth&Space	79	Zhuang Tao
R35	M	5:30pm- 6:23pm	Physics	P127	Yoon-Joo Kim
R36	Tu	1:00pm- 1:53pm	Physics	P117	Deb Wertz

Directions: Show all work in the space provided. If you need more space use the blank backs of the exam sheets. Be sure that you don't have answers to any question in more than one place. Answers without the required work will receive no credit.

Part I: For the following find the indefinite or definite integrals. Leave all answers in simplest form. [10 points each]

Reference Formulas: You may not need all of these.

$$\cos^2 x = \frac{1}{2}(1 + \cos 2x)$$

$$\sin^2 x = \frac{1}{2}(1 - \cos 2x)$$

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

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

$$a^2 \cos^2 \theta = a^2 - a^2 \sin^2 \theta$$

$$a^2 \tan^2 \theta = a^2 \sec^2 \theta - a^2$$

$$a^2 \sec^2 \theta = a^2 \tan^2 \theta + a^2$$

1. $\int_1^2 \frac{-2}{y^3} dy$

2. $\int x \sin(x^2 + 1) dx$

3. $\int \cos^2 x \, dx$

4. $\int \sin^2 x \cos x \, dx$

5. $\int \frac{2}{x^2-2x} \, dx$

$$6. \int \frac{2x+2}{x^2+2x-3} dx$$

$$7. \int x^2 \sin x dx$$

DRAFT

8. Evaluate the improper integral: $\int_0^{+\infty} e^{-x} dx$ If the integral diverges explain why, otherwise give the value of the integral.

9. Evaluate the improper integral below. If the integral diverges explain why, otherwise give the value of the integral.

$$\int_2^5 \frac{3dx}{x-2}$$

10. Evaluate the integral $\int \frac{\sqrt{x^2-16}}{x} dx$ using a *trigonometric substitution*. See the page 2 of this exam for needed formulas.

DRAFT