

Math 265B – Calculus

Section 71261, Fall 2009, Cuesta College

Time: MTWRF 10:30 – 11:20

Place: room 4405

Instructor: Joe Vasta, Ph.D.

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 hours: MTWRF 9:30 – 10:20

Book: Calculus: Early Transcendentals, 6th edition, by James Stewart

Calculators: The TI-30X IIS or TI-34 II are the **only** calculators allowed on the exams. Bring your own or borrow one (TI-30X IIS) from the instructor during exams. The TI-83 Plus or Winplot will be used on selected homework problems.

<u>Exams:</u>	100 points	Exam 1	Friday, September 4
	100 points	Exam 2	Friday, September 25
	100 points	Exam 3	Friday, October 16
	100 points	Exam 4	Friday, November 6
	100 points	Exam 5	Friday, December 4
	<u>125 points</u>	<u>Final (cumulative)</u>	Monday, December 14, 12:00 p.m.
	625 points	Total	

If you cannot make these exam dates, then drop this class immediately!

<u>Grading:</u>	Based on total exam score:	90% and up	A
		80% – 89%	B
		70% – 79%	C
		60% – 69%	D
		below 60%	F

Exam Policy: No makeup exams (except for emergencies*, but no partial credit will be given)
 No cheating (see the Academic Honesty Policy listed in the Cuesta College catalog)

Homework: Problems will be assigned each lecture to ensure your success in the class. Homework will not be collected, but answers to the problems can be found in the back of the book.

Absences: You will be allowed a total of 3 absences. If you are absent a 4th time, you might be dropped.

Free Tutoring: The Math Lab and Tutorial Center offer free tutoring.

DSPS: DSPS offers support for students with documented disabilities.

Drop Dates: Saturday, September 12 — Last day to drop without the course appearing on your transcript.
 Saturday, November 7 — Last day to drop with a "W" grade.

Other Info: Be on time.
 Turn off cell phones before entering the classroom.
 For a list of course outcomes, go to <http://academic.cuesta.edu/math/courses.htm>

* emergencies include: car accidents on the way to the exam, being rushed to the emergency room right before the exam
 emergencies do not include: family vacations, plane tickets, concert tickets, your car broke down two weeks before the exam, hangnails, constipation, you didn't have time to study, etc.

Math 265B Homework

R3	p. 262	1-39 odd
5.4	p. 397	6-18 even, 22-38 even, 42, 44
5.5	p. 406	2-70 even
6.1	p. 420	1-29 odd
6.2	p. 430	1-35 odd
6.4	handout	
	p. 441	3, 7, 10, 13, 15
7.1	p. 457	1-19 odd 23-41 odd, 47, 48, 53
7.2	p. 465	1-41 odd
7.3	p. 472	1-29 odd, 33
7.4	p. 481	1-35 odd, 39-47 odd
7.5	p. 488	1-49 odd
7.6	p. 493	1-15 odd, 19-25 odd
7.7	handout	
7.8	p. 515	1-39 odd
8.1	p. 530	1, 3, 5, 7, 8, 11, 12, 13, 15, 16
8.3	p. 547	UNKNOWN
8.5	handout	
9.1	p. 571	1-11 odd, 12
9.2	p. 578	1, 3-7 all, 9-13 odd, 21-24 all
9.3	p. 586	1-25 odd, 35, 37a, 39a
	handout	
3.8	p. 239	1-4 all, 8-10 all, 13-15 all
9.4	p. 598	3
11.1	p. 684	3-34 all, 41, 43, 55, 60-67 all
11.2	p. 694	9, 11-51 all, 59
11.3	p. 703	3-26 all, 31, 41
11.4	p. 709	3-30 all, 37
11.5	p. 713	2-20 all
11.6	p. 719	1-31 all
11.7	p. 722	1-22 all, 25, 26
11.8	p. 727	3-29 odd, 30
11.9	p. 733	3-13 all
11.10	p. 746	5-10 all, 13-20 all, 29-38 all, 63-68 all
11.11	p. 755	UNKNOWN
FS	handout	
12.1	p. 769	1-35 odd
12.2	p. 777	1-23 odd, 24-27 all, 31
12.3	p. 784	1-13 odd, 14, 15-27 odd, 35-45 odd, 46, 47, 48, 51, 52, 57
12.4	p. 792	1-7 odd, 13, 14, 15-21 odd, 29-37 odd
12.5	handout	
14.1	p. 865	UNKNOWN

Homework Even Answers

5.4

6. $\frac{2x^{5/2}}{5} + \frac{3x^{5/3}}{5} + C$ 8. $0.25y^4 + 0.6y^3 - 1.2y^2 + C$ 10. $\frac{v^6}{6} + v^4 + 2v^2 + C$
12. $\frac{x^3}{3} + x + \tan^{-1}x + C$ 14. $-\cot t - 2e^t + C$ 16. $\tan t + \sec t + C$ 18. $2\sin x + C$
22. -70 24. -4 26. 212 28. $18\sqrt{2}$ 30. $63/2$ 32. $2e^5 + 4\sin 5 - 2$ 34. 44
36. $2 - \sqrt{2}$ 38. $1/2$ 42. $3\ln 2 - 2$ 44. 3

5.5

2. $\frac{1}{24}(2+x^4)^6 + C$ 4. $\frac{1}{18(1-6t)^3} + C$ 6. $-\tan\left(\frac{1}{x}\right) + C$ 8. $\frac{1}{30}(x^3+5)^{10} + C$
10. $\frac{1}{10.2}(3t+2)^{3.4} + C$ 12. $\frac{-1}{2(x^2+1)} + C$ 14. $-\cos(e^x) + C$ 16. $\ln\sqrt{x^2+1} + C$
18. $\frac{1}{2}\sec 2\theta + C$ 20. $\frac{1}{a}\ln|ax+b| + C$ 22. $-\frac{2}{3}\cos(1+x^{3/2}) + C$ 24. $\frac{1}{6}(1+\tan\theta)^6 + C$
26. $-e^{\cos t} + C$ 28. $\frac{(\tan^{-1}x)^2}{2} + C$ 30. $-\cos(\ln x) + C$ 32. $\ln(e^x+1) + C$
34. $-\frac{1}{\pi}\sin\frac{\pi}{x} + C$ 36. $-\tan^{-1}(\cos x) + C$ 38. $2\sqrt{1+\tan t} + C$ 40. $-\tan(\cos t) + C$
42. $\frac{1}{2}\tan^{-1}(x^2) + C$ 44. $-2\sqrt{1-x} + \frac{4}{3}(1-x)^{3/2} - \frac{2}{5}(1-x)^{5/2} + C$
46. $\frac{1}{5}(x^2+1)^{5/2} - \frac{1}{3}(x^2+1)^{3/2} + C$ 48. $-2\cos\sqrt{x} + C$ 50. $\frac{1}{3}\tan^3\theta + C$ 52. 26 54. 0
56. $1/\pi$ 58. $\frac{1}{2}\left(1 - \frac{1}{e}\right)$ 60. 0 62. $1 - \cos 1$ 64. $\frac{1}{3}a^3$ 66. $10/3$ 68. $\frac{\pi^2}{72}$ 70. $\frac{T}{\pi}\cos\alpha$

6.4 #10 27/4 ft-lb

8.1 #8 $\frac{2}{27}(55\sqrt{55} - 37\sqrt{37})$ #12 $\ln(2+\sqrt{3})$ #16 2

9.1 #12 C

9.2 #4 I #6 II #22 0.7824 #24 a. 0.392 b. 0.3867544

3.8 #2 a. $\ln 8$ b. $60 \cdot 8^t$ c. 1,006,632,960 d. 2.093 billion cells/h e. 2.79 h

#4 a. 120 b. $120 \cdot 5^{t/2}$ c. 6708 bact. d. 5398 bact./h e. 9.2 h

#8 a. $800 \cdot 2^{-t/5}$ b. 12.5 mg c. 48 days #10 a. 12.25 years b. 28.45 years

#14 a. 8.3°C b. 3.6 min.

11.1 #4 $\{1, 3/5, 1/2, 5/11, 3/7, \dots\}$ #6 $\{2, 8, 48, 384, 3840, \dots\}$

#8 $\{4, 4/3, 4, 4/3, 4, \dots\}$ #10 $a_n = \frac{1}{3^{n-1}}$ #12 $a_n = (-1)^n \frac{n}{(n+1)^2}$

#14 $a_n = 3 + 2(-1)^{n+1}$ #16 $\{1/2, -1/2, -1, -1/2, 1/2, 1, 1/2, -1/2, -1, \dots\}$, div. #18 1

#20 D #22 0 #24 1/3 #26 D #28 1 #30 $\pi/2$ #32 1 #34 D

#60 not mono. #62 inc. #64 dec. #66 inc.

- 11.2** #12 D #14 $5/3$ #16 D #18 $2+\sqrt{2}$ #20 $\frac{3e}{3-e}$ #22 D #24 D #26 D
 #28 $32/7$ #30 $\frac{\cos 1}{1-\cos 1}$ #32 D #34 D #36 $5/6$ #38 D #40 $\cos 1 - 1$
 #42 $73/99$ #44 $344/55$ #46 $\frac{237,446}{33,333}$ #48 $\frac{x-4}{5-x}$ #50 $\frac{-2}{x+1}$
- 11.3** #4 C #6 D #8 D #10 C #12 C #14 D #16 D #18 D #20 C #22 C
 #24 C #26 C
- 11.4** #4 D #6 C #8 D #10 C #12 C #14 D #16 C #18 D #20 C #22 C
 #24 D #26 C #28 D #30 C
- 11.5** #2 D #4 C #6 C #8 C #10 D #12 C #14 C #16 C #18 D #20 D
- 11.6** #2 AC #4 D #6 AC #8 D #10 CC #12 AC #14 AC #16 D #18 AC
 #20 AC #22 D #24 AC #26 D #28 AC #30 C
- 11.7** #2 C #4 C #6 D #8 D #10 C #12 D #14 C #16 D #18 C #20 C
 #22 C #26 C
- 11.8** #30 C D C D
- 11.9** #4 $\sum_{n=0}^{\infty} 3x^{4n}$, $(-1, 1)$ #6 $\sum_{n=0}^{\infty} \frac{(-1)^n x^n}{10^{n+1}}$, $(-10, 10)$ #8 $\sum_{n=0}^{\infty} (-1)^n 2^n x^{2n+1}$, $\left(\frac{-1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$
 #10 $\sum_{n=0}^{\infty} \frac{x^{3n+2}}{a^{3n+3}}$, $(-|a|, |a|)$ #12 $-\sum_{n=0}^{\infty} [(-2)^n + 1] x^n$, $(-1/2, 1/2)$
- 11.10** #6 $\sum_{n=1}^{\infty} \frac{(-1)^{n-1} x^n}{n}$, $R=1$ #8 $\sum_{n=0}^{\infty} \frac{(-1)^n 3^{2n} x^{2n}}{(2n)!}$, $R=\infty$ #10 $\sum_{n=1}^{\infty} \frac{x^n}{(n-1)!}$, $R=\infty$
 #14 $6-11(x+2)+6(x+2)^2-(x+2)^3$, $R=\infty$ #16 $-\sum_{n=0}^{\infty} \frac{(x+3)^n}{3^{n+1}}$, $R=3$
 #18 $\sum_{n=0}^{\infty} \frac{(-1)^n (x-\pi/2)^{2n}}{(2n)!}$, $R=\infty$ #20 $\sum_{n=0}^{\infty} (-1)^n (n+1)(x-1)^n$, $R=1$
 #30 $\sum_{n=0}^{\infty} \frac{(-1)^n \pi^{2n} x^{2n}}{2^{2n} (2n)!}$, $R=\infty$ #32 $\sum_{n=0}^{\infty} \frac{[1+2(-1)^n] x^n}{n!}$, $R=\infty$
 #34 $\sum_{n=0}^{\infty} \frac{(-1)^n x^{6n+5}}{2n+1}$, $R=1$ #36 $\frac{x^2}{\sqrt{2}} + \sum_{n=1}^{\infty} \frac{(-1)^n 1 \cdot 3 \cdot 5 \cdots (2n-1) x^{n+2}}{n! 2^{2n+1/2}}$, $R=2$
 #38 $\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n+3)!}$, $R=\infty$ #64 $\frac{\sqrt{3}}{2}$ #66 $e^{3/5}$ #68 $1/2$
- 12.2** #24 $\langle -\sqrt{6}, 2\sqrt{6}, \sqrt{6} \rangle$ #26 hori. comp. 39.4 N, vert. comp. 30.8 N
- 12.3** #14 total revenue for the day #46 750,000 $\sqrt{3}$ J #48 38,833 ft-lb #52 35°
- 12.4** #14 $25\sqrt{3}$, into