

THE COLLEGE OF STATEN ISLAND  
DEPARTMENT OF MATHEMATICS

MATH 230 – CALCULUS I WITH PRECALCULUS

TEXTS: *Calculus, Early Transcendentals*, by Jon Rogawski, W. H. Freeman and Company, 2008,  
*Precalculus*, Bittinger, 4th edition (certain sections only - see below)

As an alternative to obtaining the text, you may buy an electronic packet containing these sections online.) If you do NOT intend to take MTH 233, you may instead purchase Rogawski, Single Variable Calculus: Early Transcendentals.

Each numbered lesson corresponds to a two-hour class. Sections prefixed with “B” refer to sections in Bittinger. Homework problems in **bold** have matching WebWork problems, to be submitted online (<http://www.math.csi.cuny.edu/webwork2>).

<u>Lesson</u>	<u>Sections</u>	<u>Topics</u>	<u>Homework Problems</u>
1	1.1	Functions	<b>13, 15, 49, 51, 67.</b>
	B-2.2	Combination of functions	17, 19, 20, 25, 33.
	B-2.3	Composition of functions	11, 15, 21, 23, 31, 33, 34.
	B-2.4	Symmetry and transformations	33, 37, 48, 49, 50, 53.
2	B-4.1	Polynomial functions	5, 11, 13, 17, 37, 42.
	B-4.2	Graphing polynomial functions	7, 9, 10, 11, 13.
	B-4.3	Polynomial division	7, 9, 11, 13, 15.
3	B-4.4	Fundamental thm. of algebra only	1, 3, 5.
	B-4.5	Rational functions	3, 13, 14, 21, 23, 25.
	B-5.1	Inverse functions	13, 15, 19, 21.
4	B-5.1	Inverse functions	33, 35, 59, 61, 63.
	B-5.2	Exponential functions	5-10, 11, 17, 25.
	B-5.3	Logarithmic functions	5, 9, 13, 29, 37, 39, 41, 47.
5	B-6.1	Trigonometric functions	9, 19, 85, 86.
	B-6.2	Applications of right triangles	9, 11, 13.
	B-6.3	Trigonometric functions of any angle	27, 35, 39, 41.
	B-6.4	Unit circle, radian measure	3, 11, 14, 24.
6	B-6.5	Graphs of trigonometric functions	9, 20, 23, 43, 51.
	B-6.6	Graphs of transformed sines, cosines	3, 18, 24, 27, 44.
	B-7.1	Basic trigonometric identities	3, 9, 17, 23, 31.
7	B-7.2	Trigonometric identities	9, 13, 17, 22, 31, 32, 33, 55.
	B-7.3	Proving trigonometric identities	1, 3, 4, 9, 20, 25, 26, 30.
8	B-7.4	Inverses of trigonometric functions	1, 5, 16, 18, 35, 39, 43, 55.
	B-7.5	Solving trigonometric equations	9, 13, 19, 27, 31, 41, 60.
9	2.1	Limits and rates of change	<b>1, 3, 7, 8, 15, 23, 29.</b>
	2.2	Limits: numerical and graphical	5, 8, <b>21, 23, 25, 27, 31, 37, 38.</b>
10	2.3	Basic limit laws	13, 15, <b>17, 19, 21, 25, 27.</b>
	2.4	Limits and continuity	1, 3, 5, 7, <b>19, 23, 25, 27, 67, 73, 77.</b>
11	2.5	Evaluating limits algebraically	1, <b>9, 15, 19, 25, 27, 39, 47, 49, 51.</b>
	2.6	Trigonometric limits	<b>7, 9, 12, 13, 23, 24, 25, 27, 35, 41.</b>
12	2.7	Intermediate Value Theorem	1, 3, 5.
	2.8	Formal definition of limit	1, 3, 5.
13		Review	
14		Exam 1	

<u>Lesson</u>	<u>Sections</u>	<u>Topics</u>	<u>Homework Problems</u>
15	3.1	Definition of the derivative	1, 3, 5, 7, 11, 13, 53, 55, 57.
16	3.2	The derivative as a function	1, 3, 11, 12, 24, 27, 39, 55, 57.
17	3.3	Product and quotient rules	13, 14, 23, 24, 31, 33, 35, 53.
18	3.4	Rates of change	5, 7, 13, 15, 20, 31, 33, 35.
19	3.5	Higher derivatives	13, 17, 19, 27, 29, 53.
	3.6	Trigonometric functions	9, 13, 15, 17, 21, 33, 43.
20	3.7	The chain rule	3, 5, 6, 7, 13, 19, 35, 39, 77.
21	3.8	Implicit differentiation	1, 2, 5, 11, 17, 25, 31, 41, 43.
22	3.9	Derivatives of inverse functions	7, 9, 11, 13, 15, 23, 27.
	3.10	Derivatives of exponential and log functions	7, 9, 15, 17, 27, 35, 37.
23	3.11	Related rates	3, 5, 9, 15, 17, 21, 25, 27, 31.
24		Review	
25		Exam 2	
26	4.1	Linear approximation	9, 13, 15, 19, 25, 41, 45, 49.
27	4.2	Extreme values	7, 11, 15, 39, 47, 53, 65.
28	4.3	First derivative test	1, 13, 15, 16, 21, 29, 33, 35, 39, 51.
29	4.4	Second derivative test	4, 5, 9, 13, 17, 29, 33, 43, 45.
30	4.5	Graph sketching	1, 5, 15, 53, 57, 63, 65, 67, 73.
31	4.6	Optimization	3, 5, 9, 11, 13, 15, 19, 22, 41, 47.
32	4.7	L'Hôpital's rule	11, 13, 27, 31, 33, 35, 43, 45, 47.
	4.8	Newton's method	1, 3, 7, 9, 13.
33	4.9	Antiderivatives	7, 8, 25, 27, 33, 43, 45, 47, 65, 67.
34		Review	
35		Exam 3	
36	5.1	Approximating area	2, 3, 13, 15, 17, 21, 23.
37	5.2	The definite integral	3, 7, 13, 14, 20, 29, 37, 57.
38	5.3	Fundamental theorem of calculus I	9, 17, 23, 27, 37, 43, 45, 51.
39	5.4	Fundamental theorem of calculus II	5, 15, 21, 23, 24, 31, 33, 37.
40	5.5	Net change	1, 3, 5, 7, 11, 13, 17.
41	5.6	Integration by substitution	33, 35, 37, 39, 43, 47, 51, 67, 69, 91.
	5.7	Integration of transcendental functions	3, 7, 13, 17, 27, 33, 43, 47, 57.
42	5.8	Exponential growth and decay	1, 5, 9, 11, 17, 23, 33.