

Bronx Community College
of the City University of New York
Department of Mathematics and Computer Science

Math 34: *Differential Equations* Semester: *Spring 2016*

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Text: *Differential Equations, 4th ed.*, P. Blanchard, R. L. Devaney, G. R. Hall

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Section	Topic	Homework Exercises
1.	First-Order Differential Equations	
1.2	Analytic Technique: Separation of Variables	p.33: 1–19 odd, 4, 10, 20, 27–30, 36, 39, 41, 42
1.3	Qualitative Technique: Slope Fields	p.47: 7, 9, 11–14, 16, 22
1.4	Numerical Technique: Euler’s method	p.61: 1, 2, 5, 7
1.5	Existence and Uniqueness of Solutions	p.71: 1, 3, 5–7, 11, 12, 14, 16
1.6	Equilibria and the Phase Line	p.89: 1, 3, 4, 5, 7, 13, 15, 17, 18, 23, 25, 29, 37, 43, 44
1.8	Linear Equations	p.121: 1, 3, 5, 7, 11, 13, 17, 18, 21, 23
1.9	Integrating Factors for Linear Equations	p.133: 1, 3, 5, 9, 11, 20, 21, 23, 24
	Review Exercises for Chapter 1	p.136: 1–9, 11–20, 21–43 odd, 44, 46–48, 51–55
2.	First-Order Systems	
2.1	Modeling via Systems	p.161: 1-8,11-15,19-24
2.2	The Geometry of Systems	p.178: 9,11,12, 21, 23–27
2.3	The Damped Harmonic Oscillator	p.187: 1,3,5 (b),(c) only
2.4	Additional Analytic Methods for Special Systems	p.194: 1–7 odd, 10
2.6	Existence and Uniqueness for Systems	p.208: 8, 9, 11
	Review Exercises for Chapter 2	p.224: 1–28, 29–33 odd, 37
3.	Linear Systems	
3.1	Properties of Linear Systems	p.258: 5–9 odd, 14–17, 24, 25, 27, 28, 31–35
3.2	Straight-Line Solutions	p.277: 1–7 odd, 11, 13, 15–19, 21, 23
3.3	Phase Planes (Real Eigenvalues)	p.293: 1–11 odd, 15, 19, 21, 27
3.4	Complex Eigenvalues	p.310: 1-15 odd, 17, 19, 23-26
3.5	Repeated and Zero Eigenvalues	p.327: 1-7 odd, 11–15 odd, 16, 18, 21–23
3.6	Second-order Linear Equations	p.342: 1–15 odd, 21, 23,26, 29, 34, 40
3.7	The Trace-Determinant Plane	p.358: 1, 2, 3, 5, 9, 11, 12
	Review Exercises for Chapter 3	p.376: 1–18, 19–32 odd
4.	Forcing and Resonance	
4.1	Forced Harmonic Oscillators	p.399: 1, 5, 7, 11, 15, 18–20, 25, 27, 31, 34–37, 40
4.2	Sinusoidal Forcing	p.412: 1, 5, 9, 11, 13, 15–19, 23
4.3	Undamped Forcing and Resonance	p.424: 1, 5, 6, 7, 10, 13–17 odd, 21
App. B	Power Series Method	p.748: 1–17 odd
	Review Exercises for Chapter 4	p.449: 1–14, 15–27 odd
6.	Laplace Transforms	
6.1	Laplace Transforms	p.577: 1–3, 5–9, 12, 13, 15, 20, 24, 27
6.2	Discontinuous Functions	p.585: 1, 2, 3–9 odd, 13, 17, 19
	Review Exercises for Chapter 6	p.627: 1–17, 19-30 odd

There will be two (2) in-class tests, and a Final Exam

Students are expected to present homework problems on the blackboard when asked.