UNIVERSITY OF FLORIDA
MAC 1147 CAMPUS - FALL 2018
CALENDAR / SYLLABUS as of 8/14/18

CONTACT INFORMATION

The course home page is located in Canvas. Log in to Canvas at https://elearning.ufl.edu.

You can send a message to one of your instructors by going to the Inbox in Canvas (left side).

Course Coordinator

Course Coordinator: Sherry Tornwall

Office: Little 374

Office hours: Tuesday 2nd and 3rd period (8:30-10:25 am), Thursday 8th (3:00-3:50), or by appointment

Email: tornwall@ufl.edu (please use the Canvas Inbox for email)

Phone: 352-294-2336

Lecturer

Lecturer _____

Office _____

Office hours _____

Email _____

Teaching Assistant

TA _____

Office _____

Office hours _____

Email _____

Table of Contents

1. Introduction

1a. Course Content

College algebra, functions, coordinate geometry, exponential and logarithmic functions, and trigonometry. This **fast-paced course** is designed as a review of algebra and trigonometry to prepare the student for calculus. If you feel this course will be too fast paced, you can take it over two semesters by taking MAC 1140 Precalculus Algebra and then taking MAC1114 Trigonometry.   You have until the end of add/drop (first five days of the semester) to change your schedule.

A minimum grade of C (not C-) in MAC 1147 satisfies four hours of the general education requirement and also satisfies the pure math portion of the state Writing/Math requirement. Note: A student can receive at most four credits for taking both MAC 1147, and MAC 1140 or MAC 1114, and at most five credit hours for taking MAC 1147, MAC 1140, and MAC 1114. Students who successfully complete this course (C or better) can advance directly to MAC 2311, Calculus 1 (for engineers and scientists), or into MAC 2233, Survey of Calculus.

If your goal is to take MAC 2233, Survey of Calculus (for business majors), then you might want to talk to your advisor about taking MAC 1140, Precalculus Algebra, instead of this course (which includes trigonometry) since there is no trigonometry requirement for MAC 2233.

Students taking this course for general education credit or the pure math portion of the Math requirement, and who do not need precalculus for their major or as preparation for calculus, might consider taking MGF 1106, MGF 1107, or MAC 1105. For more information on math courses and math advisors go to http://www.math.ufl.edu/.

1b. Prerequisites

A minimum score of 50% on the ALEKS exam or prior MAC1147 credit (or higher) is required.

This course assumes prior knowledge of intermediate algebra (Algebra 2) and trigonometry. Students should be able to do arithmetic without a calculator.

MAC 1147 begins with a short review of high school algebra topics (appendices A1 – A7). **You should already be competent in working this material.**

1c. Required Materials

- ❖ A valid WebAssign access code. See section below titled "There are several purchase options" to find out how to purchase access for only $62.50.
    - ▪ WebAssign includes the e-book. If you are comfortable using the ebook, no other purchase is required.
    - ▪ WebAssign provides a two-week grace period before you must purchase an access code.

- You should always use https://www.webassign.net/ufl/login.html to login to WebAssign (and then your Gatorlink login info as directed). Once at the site, click on the **login** on the **left** side. Don't use Internet Explorer as it does not always work properly.

❖ Access to the textbook: **PRECALCULUS**, 10th edition, by Larson.
- You may use either the e-book (comes free with WebAssign access) or a hard copy.
- There is a loose-leaf print version ($50) of the textbook available at the UF Bookstore for students who wish to have a printed resource.
- The solutions manual is NOT required.

❖ **There are several purchase options:**
- UF All Access program: You have the opportunity to purchase WebAssign access (includes e-book) for a REDUCED price ($62.50) and pay through your student account. Note: You can also purchase a loose-leaf print version of the textbook through the UF Bookstore (approximately $50). The following link on the university website will take you to the appropriate place to purchase the UF All Access options specific to your course(s), at a discounted rate negotiated by UF: https://www.bsd.ufl.edu/G1CO/IPay1f/start.aspx?TASK=INCLUDED . The deadline to opt-in is September 14, 2018.
- You can purchase a WebAssign access code through the UF Bookstore.
- You can purchase a WebAssign access code and a loose-leaf print version of the textbook through the UF Bookstore.
- You can purchase a WebAssign access code directly from WebAssign.
- You can purchase the WebAssign access code and/or textbook at a bookstore or elsewhere. Prices vary.

1d. E-Learning Canvas

Canvas is located at https://elearning.ufl.edu . Use your Gatorlink username and password to login. You can find your grades, announcements, lecture outlines, free help information, etc., at this site. You are responsible for verifying that your grades are accurate. **You have one week after a score has been posted to contact your TA if you believe there has been a grading or a recording error.**

1e. Lectures

The lecture presentations are an important aspect of the learning process. The lecture provides the main presentation of the course material. You are responsible for learning the material missed due to an absence. Lecture outlines can be printed from Canvas. It is suggested that you read the book, attend lecture or watch the pre-taped video, do the corresponding book homework and the WebAssign Homework, and then take the WebAssign Quiz.

You may print the lecture outlines which can be found on Canvas under Course Materials or you can purchase them at Target copy Center at 1412 West University Avenue for about $20.

1f. Calculator Policy

A calculator may be used on WebAssign homeworks and WebAssign quizzes, but NOT on discussion quizzes nor on exams.

1g. Discussion Sections

Discussion sections meet once a week (either Tuesday or Thursday, depending on the section in which you are registered) give you a valuable opportunity for open discussion of the lecture material and assigned problems in a smaller class setting. A significant portion of the points that determine your grade are earned in discussion class. If necessary, twice during the semester you may attend a different period of your TA's discussion class. Go to www.math.ufl.edu/courses to see when and where your TA teaches.

Your main resource person is your discussion leader, a teaching assistant (TA) in the mathematics department. He or she is available during office hours (or by appointment) to answer your questions about the course material. Your TA is responsible for grading/recording your discussion quizzes, homework, free response on tests, and lecture participations. You must retain all returned papers in case of any discrepancy with your course grade. As mentioned above, **you should check Canvas regularly and consult with your discussion leader if you have any questions about recorded grades. All grade concerns must be taken care of within one week of receiving the score.** Your grade is subject to being raised or lowered if there is a recording error, computational error, bubbling error, "padding" error, etc.

If you have concerns about your discussion class which cannot be handled by your TA, please contact the course coordinator, Professor Tornwall, in Little 374, tornwall@ufl.edu (use Canvas email).

1h. Help (free)

- Your main resource person is your teaching assistant (TA) in the mathematics department. He or she is available during office hours to answer your questions about the course material.

- You may also contact the course coordinator, Professor Tornwall, during her office hours for help, your lecturer, or **any** of the MAC 1147 TAs (See Canvas Course Materials, Help section for office hours).

- In **addition to attending your discussion section regularly, and visiting ANY MAC1147 teaching assistant, lecturer, or the course coordinator**, during their office hours, the following aids are available.

  - The Teaching Center Math Lab, located at SE Broward Hall, offers free informal tutoring all days except Saturday. You may want to attend different hours to find the tutors with whom you feel most comfortable. Go to www.teachingcenter.ufl.edu to find the hours. You can also request free one-on-one tutoring.

  - The Little Hall Math Lab in room 215. Monday – Friday.

- Solutions, interactivity, videos, and tutorial help are available for free at www.LarsonPrecalculus.com.

- Private Tutors: If after availing yourself of these aids, you feel you need more help, you may obtain a list of qualified tutors for hire at www.math.ufl.edu. Search "tutors".

- For help resolving technical issues (computer problems, Gatorlink, etc.) contact the UF Computing Help Desk at http://helpdesk.ufl.edu , 352-392-help.

- Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx , 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

- Your well-being is important to the University of Florida. The **U Matter, We Care** initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

1i. Success

Success in MAC 1147 depends largely on your attitude and effort. Keeping up with the material is critical. Most students find it beneficial to work daily on the material as opposed to saving it all for one day. It is not effective to sit and copy notes without following the thought processes involved in the lecture. For example, you should try to answer the questions posed by the lecturer. Students who actively participate have greater success.

Be aware that much of the learning of mathematics at the university level takes place outside of the classroom. You need to spend time reviewing the concepts of each lecture **before** you attempt homework problems. It is also important to spend some time looking over the textbook sections to be covered in the next lecture to become familiar with the vocabulary and main ideas beforehand so that you will be better able to grasp the material presented in lecture. **You should expect to spend at least 12 hours per week working on this course – four in class hours and eight hours outside of class.**

It can also be very helpful to study with a group. This type of cooperative learning is encouraged, but be sure it leads to a better conceptual understanding. **You must be able to work through the problems on your own.**   Even if you work together, **each student must turn in his or her own work, not a copied solution, on any collected individual assignments.**

1j. Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. After the accommodation letter is given to Professor Tornwall, you will receive accommodations. Students with disabilities should follow this procedure as early as possible in the semester since the accommodations are not retroactive.

1k. Academic Honesty

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

2. Testing

The first four exams are at 8:30 p.m. See the course calendar for the dates. The cumulative final is during finals week.   Room locations will be posted on Canvas prior to the exams

- ♦ Students are responsible for material covered in the lecture notes, including practice problems at the end of some lectures, all assigned book homework problems, and all assigned WebAssign material.

- ♦ There are sample exams under the Course Materials link on Canvas. Also, sample exams are available from the Teaching Center one week prior to the exam.

- ♦ You should bring to each test only* the following:

    - Your UF Gator One Card.

    - Soft lead pencils.

    - Knowledge of your section number.

    *It is suggested that you do not bring anything of value to the test since you are not allowed to take items such as backpacks to your seat.

- ♦ **NO CALCULATORS ARE PERMITTED.** All electronic devices must be put away. This includes phones. Scratch paper will be provided.

- ♦ The Test Form Code, as well as **your UF ID**, and name must be encoded correctly or you will **lose points**.   You must also take the test in your assigned test location or you will lose points on your test.

- ♦ No one will be admitted to the test 30 minutes after the starting time of the test. No one will be permitted to leave the test until 30 minutes after the stated start time.

3. Grading

3a. Course Grade

The course is based on 500 points accumulated as follows:

Web Tour (in Canvas)	1 point (0.2%)
Calendar and Syllabus Quiz (in Canvas)	2 points (0.4%)
Contract (in Canvas)	1 point (0.2%)
Self-evaluation (in Canvas)	1 point (0.2%)
Book HWs (3@10 pts, for a max of 20 pts)	20 points (4%)
Discussion Quizzes (best 8 of 10 @ 10 pts)	80 points (16%)

Online WA HWs (34 @ 1 pt, max. of 30)	30 points (6%)
Online WA Quizzes (best 10 of 13 @ 2 pts)	20 points (4%)
Exams (best 3 of 4 @ 80 pts)	240 points (48%)
Cumulative Final Exam	105 points (21%)

Add your bonus points, then use the scale below to determine your final letter grade. The **course grade is determined by the number of points** you have, **not by the percentage**, and will be strictly enforced.

A = 450-500 points (90%)

A - = 435-449 points (87%)

B+ = 420-434 points (84%)

B = 400-419 points (80%)

B - = 385-399 points (77%)

C+ = 370-384 points (74%)   For information on dropping courses and withdrawals go to

C = 350-369 points (70%)   https://catalog.ufl.edu/ugrad/current/regulations/info/drops.aspx#drop

C- = 335-349 points (67%)

D+ = 320-334 points (64%)

D = 300-319 points (60%)   For information about UF grades and grading policies go to

D- = 285-299 points (57%)   https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

E = below 285 points

3b. Course Introduction Quizzes

The Web Tour Quiz, the Calendar/Syllabus Quiz, and the Contract are to help you understand what is expected of you in this course. You will find these assignments on Canvas under Assignments. They are due at the beginning of the semester.

3c. Self-evaluation

The Self-evaluation which is found in Canvas is after Exam 2. Its purpose is to let you know your approximate standing in the class. See the calendar for the due date.

3d. Textbook Homework

The text assignments on page 13 represent the <u>minimum</u> number of problems you should do in each section and serve as a basis for your questions in your discussion section. Homework must be done neatly and work must be shown for credit. You do not need to copy the problem from the book. Homework will be checked for completeness and a few problems will be graded for accuracy. The work should be your own and not copied from the solutions manual as this is a violation of the honesty code. Homework will be collected three times during the semester. See the calendar for collection dates. Some homework problems suggest the use of a graphing calculator. These are designed to help you visualize important concepts

and to reinforce the mathematical processes involved. The use of a calculator when doing homework is not required. **Calculators are not permitted on quizzes nor on exams.**

3e. Discussion Class Quizzes

These will be administered in the discussion section the last 10-15 minutes of class by your discussion leader. Quizzes will be based on the previous lectures and homework assignments. See the calendar for more information. **If you feel there is a grading error or posting error on Canvas, you must discuss it with your TA within one week.** No aids may be used on the discussion quiz.

If you are more than ten minutes late to class, you will lose 1 point for each 10 minutes that you are late.

3f. WebAssign Homeworks and Quizzes

If you purchased a new book, the WebAssign access code probably came with the book. If you did not purchase a new book then you will need to purchase the access code. See section 1c for information on purchasing the access code.

To access WebAssign go to http://webassign.net/ufl/login.html (You must use this full url.) and your Gatorlink login and password. Click on the login on the **left** side. **Don't use Internet Explorer since it does not always work properly.** If you have previously purchased the access code you will now enter it. If you have not yet purchased the access code, you can use the free grace period for the first two weeks.

You must score a minimum of 70% on the WebAssign Homeworks before you can take the corresponding WebAssign Quiz. You have 10 attempts and unlimited time on each WebAssign Homework. You have three attempts and one hour on each WebAssign Quiz. See WebAssign for the specific due dates. **It is suggested that you do the WebAssign Quizzes prior to their due dates.**

There is a two-day **extension** on WebAssign homeworks and and a one-day **extension** on WebAssign quizzes. The extension button will be visible after the due date. Click Past Assignments (at the bottom of the current assignments), then click the extension link. There is no penalty for using an extension. There is no limit on the number of assignments for which you can use the extension request. However, if you often use the extension, then you need to work on time management because you are falling behind.

DO NOT wait until the last minute, since if you encounter a computer glitch or if WebAssign is down, YOU will be out of luck!

The best attempt for each WebAssign quiz and homework is the score that is counted. The WebAssign homeworks and quizzes are open-book and open-note. You may have someone help you with the WebAssign homeworks, but NOT with the quizzes.

If you feel your answer is correct, but WebAssign marks it wrong, see your TA during office hours or email your TA. **You have one week from the due date to take care of this.**

For questions on how to use WebAssign contact WebAssign Support or post on the Canvas Discussion board for help from your classmates. Often just using a different browser solves the problem.

3g. Lecture Participation and/or Video Checkpoint Bonus Points

There are bonus points available for either attending lecture or watching the pre-taped videos by the due date. You may choose to earn your bonus points by attending the live lectures, watching the pre-taped videos, or a combination of the two. However, you may only count a maximum of eight Lecture Participation/Video Checkpoint bonus points.

Lecture Participation points will be given in lecture four times during the semester. They are worth two points which will be added to your total points. You may use your book, your notes, work in groups, or get help from the lecturer. To receive credit you must put your TA's name and your section number on your paper. There are no make-ups.

Video Checkpoint bonus points are earned by watching the videos and answering the check point questions before the due date. **Video Checkpoint bonus questions are found on Canvas under Quizzes.** The due dates are 10 pm the day of the live lecture. There are no extensions available.

3h. Make-up Policies (See section 3a to see which scores are dropped.)

All make-up work must be completed by Monday, December 4 at noon.

- ♦ **Exams** - If you have a conflict due to a UF sponsored event or an assembly exam in another course with a higher course number, you need to bring your documentation to Professor Tornwall in Little 374 at least one week (otherwise 5-point penalty) before the exam to sign up for the make-up which will be given within one week of the test date.

  If you miss for any other valid reason you must notify Professor Tornwall within a week of the exam (otherwise 5-point penalty). To be eligible for this make-up you must receive at least four points from the Lecture Participation or Video Checkpoint bonus points by the end of the semester. This make-up will be given at the end of the semester.

- ♦ There is a 10-point penalty for missing the final due to negligence.

If other classes are scheduled during the exam time, University policy states that the assembly exam takes precedence over the evening class and the evening class instructor must provide make-up work and cannot penalize students who miss because of an assembly exam.

- ♦ **Discussion quizzes** - There are no make-ups, unless,

a) You are participating in a UF sponsored event, for which you must bring your documentation at least one week prior to Professor Tornwall.

b) You miss at least three discussion quizzes for which you have valid, documentable reasons for your absences. You will be allowed to make up the excused absences that are in excess of two. To be eligible for this make-up you must receive at least four points from the Lecture Participation or Video Checkpoint bonus points by the end of the semester.   Bring your documentation to Professor Tornwall in Little 374 within one week of your third discussion quiz absence.

c) You miss because of a religious holiday. You must notify Professor Tornwall within the first three weeks of class if you will be missing a discussion class during the semester **due to a religious holiday**.

d) You miss because of a court-ordered or military obligation – see Professor Tornwall.

♦ **Homework collection** – There are no make-ups, unless you are participating in a UF sponsored event. In this case you must bring your HW to your TA <u>prior</u> to the collection day along with your documentation.

If you are not able to be in discussion class that day, you can turn your HW in early to your TA or have someone take it to class for you. You must turn in <u>ALL</u> the HW from the lectures that were on the test. There is a two-point penalty for not being in discussion class.

♦   **WebAssign, Lecture Participation, Video Checkpoints** - There are no make-ups.

♦ Absences and Make-up Work: "Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

3i. Incomplete/Concerns/Complaints

♦ **Incomplete:** A grade of I (incomplete) will be considered only if you meet the Math Department criteria which are found at http://www.math.ufl.edu/. If you meet the criteria you must contact Professor Tornwall before finals week to be considered for an I. An I only allows you to make up your incomplete work, not redo your work.

♦ **Concerns/Complaints:** If you have concerns/complaints about the course you may voice your concerns to the course coordinator, the Mathematics Department Associate Chair, and then the University Ombuds at ombuds.ufl.edu.

4. Instructor Evaluations

Students are asked to provide feedback on the quality of instruction in this course based on ten criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results after the conclusion of the semester.

5. Textbook Homework Assignments

You should read the textbook sections covered in each lecture before coming to lecture. After each lecture, review your notes and the text to make sure you understand the main ideas prior to working the exercises.

If you have questions about the reading or homework exercises, you may ask your TA (or the course coordinator during office hours).

You should complete each assignment before the next lecture, since the material in each lecture often builds on previous concepts.

L1 Real Numbers

Reading: Student Guide, Appendix A.1

Exercises (A.1), page A11: 1, 3, 6, 7, 9, 16, 19, 21, 25, 27, 33, 35, 37, 38, 41, 44, 47, 49, 57, 62, 69, 71, 73, 74, 75, 77.

L2 Exponents and Radicals

Reading: Appendix A.2

Exercises (A.2), page A23: 1, 4, 8, 10, 13, 20, 25, 26, 29, 30, 39, 41, 46, 47, 49, 51, 52, 53, 55, 57, 58, 59, 60, 61, 63, 65, 68, 71, 72, 73, 74.

Additional exercise: Simplify the radical expression $\sqrt[3]{81x^7y^2} \cdot \sqrt[3]{36x^2y^2}$.

L3 Polynomials and Factoring

Reading: Appendix A.3

Exercises (A.3), page A33: 1, 2, 5, 8, 11, 17, 23, 25, 29, 31, 33, 35, 39, 41, 43, 45, 49, 53, 57, 65, 69, 75, 81, 88, 91, 92.

L4 Rational Expressions

Reading: Appendix A.4

Exercises (A.4), page A42: 4, 5, 7, 15, 19, 29, 31, 35, 38, 42, 45, 50, 53, 54, 55, 58, 59, 60, 61, 67, 70, 72, 73, 77, 79, 80.

L5 Solving Equations

Reading: Appendix A.5

Exercises (A.5), page A56: 1, 3, 4, 12, 17, 19, 21, 24, 33, 37, 41, 42, 43, 50, 51, 54, 62, 64, 70, 75, 78, 79, 82, 84, 85, 87, 88, 90, 91, 94, 96, 98, 99, 100.

Additional exercises: Find all real solutions and check your answers.

1. $6x^{-2} + x^{-1} = 2$

2. $8(m-4)^4 - 10(m-4)^2 + 3 = 0$

3. $(y+3)^{2/3} - 2(y+3)^{1/3} - 3 = 0$

4. $4(x+1)^{1/2} - 5(x+1)^{3/2} + (x+1)^{5/2} = 0$

5. $\dfrac{1}{x-3} + \dfrac{3}{x+3} = \dfrac{6x}{x^2-9}$

6. $\dfrac{x^2-9}{x^2-2x-3} = \dfrac{3}{2}$

7. $x^8 - 4x^4 - 5 = 0$

8. $3x^4 + 10x^2 - 25 = 0$

9. $\sqrt{x+7} + 3 = \sqrt{x-4}$

10. $2x = 1 - \sqrt{2-x}$

11. $x = \sqrt{15-2x}$

12. $(5x^2-6)^{1/4} = x$

13. $\sqrt[3]{4x+3} = \sqrt[3]{2x-1}$

14. $(2x-1)^{2/3} = x^{1/3}$

15. $\sqrt{x} - (3)\sqrt[4]{x} - 4 = 0$

16. $x^{1/2} + 3x^{-1/2} = 10x^{-3/2}$

17. Factor $x^6 - 2x^4 + x^2$ completely and find all of the real solutions of the equation $x^6 - 2x^4 + x^2 = 0$.

L6 Linear Inequalities and Algebraic Errors

Reading: Appendices A.6 and A.7

Exercises (A.6), page A64: 4, 5, 15, 28, 34, 38, 54, 55, 69, 73, 75, 76, 79, 80, 81, 83, 86, 89, 91, 93, 95, 97, 101, 105, 109, 110, 111, 112, 114.

Exercises (A.7), page A72: 3, 7, 10, 15, 19, 21, 23, 25, 28, 29, 33, 37, 39, 43, 51, 53, 55, 56, 57.

L7 Rectangular Coordinates and Graphs

Reading: Sections 1.1 and 1.2

Exercises (1.1), page 8: 1, 2, 3, 4, 9, 11, 13, 26, 28, 29, 38, 40, 43, 47, 48, 51, 52, 53, 54, 58.

Exercises (1.2), page 19: 2, 4, 5, 11, 15, 21, 28, 29, 31, 33, 37, 40, 41, 42, 43, 45, 47, 67, 69, 72, 73, 78, 80, 83 a, b, 87, 88, 89.

Additional exercises:

1. Find the equation of a circle in standard form with center at the point $(-3, 2)$ and tangent to the line (touching the line) $y = 4$.

2. Given the circle $x^2 + (y + 1)^2 - 1 = 8$, find its center, radius, and intercepts. (Hint: Sketch the graph.)

L8 Linear Equations and Functions

Reading: Sections 1.3 and 1.4

Exercises (1.3), page 31: 2, 4, 5, 9, 11, 13, 21, 23, 27, 39, 41, 47, 55, 65, 67, 68, 69, 70, 71, 73, 87, 89, 91, 93, 94, 95, 99, 101, 103, 104, 105, 107, 110, 111.

Exercises (1.4), page 44: 1, 3, 4, 5, 7, 11, 13, 17, 18, 22, 23, 27, 33, 41, 42, 44, 46, 53, 56, 57 a, c, 59, 61, 63, 64, 67, 75, 78, 81, 85, 86, 89, 90, 92.

L9 Analyzing Graphs of Functions

Reading: Section 1.5

Exercises (1.5), page 56: 1, 2, 6, 7, 9, 11, 13, 19, 24, 36, 40, 55, 63, 66, 67 a, c, d, e, 71, 73, 74, 75, 76, 83, 85, 91, 92, 93, 94, 95, 96, 99.

L10 A Library of Functions and Transformations of Functions

Reading: Sections 1.6 and 1.7

Exercises (1.6), page 65: 2, 3, 4, 5, 6, 7, 8, 9, 12, 35, 43, 48, 49, 50.

Exercises (1.7), page 72: 1, 2, 3, 4, 5, 8, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 34, 36, 37, 40, 43, 45, 47, 49, 50, 63, 64, 65, 66, 67, 68, 69, 70.

L11 Combinations of Functions

Reading: Section 1.8

Exercises (1.8), page 81: 1, 2, 3, 5, 10, 11, 13, 17, 23, 31, 33, 35, 38, 42, 43, 45, 47, 49, 61, 62, 63, 65, 67, 69, 72, 73 a.

L12 Inverse Functions

Reading: Section 1.9

Exercises (1.9), page 90: 1, 2, 3, 4, 5, 6, 15, 19, 23, 25, 29, 31 not b, 33, 35, 37, 39, 45, 47 not b, 48, 51 not b, 55, 61, 62, 63, 66, 68, 73, 77, 80, 83, 89, 91, 92, 93, 97, 100.

L13 Quadratic Functions

Reading: Section 2.1

Exercises (2.1), page 120: 1, 3, 5, 6, 7, 8, 12, 14, 16, 26, 35, 39, 47, 52 no calc, 53 no calc, 57, 63, 66, 67, 69, 71, 73, 75, 76, 77.

L14 Polynomial Functions of Higher Degree and Division of Polynomials

Reading: Sections 2.2 and 2.3

Exercises (2.2), page 132: 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 17, 19, 21, 23, 24, 25, 53, 61, 65, 69, 73, 74, 75, 78, 93 a, b, 99, 100, 101, 103, 105, 106, 107.

Exercises (2.3), page 142: 4, 5, 6, 7, 19, 33, 42, 45, 51 a, b, 62, 67, 80, 83, 86, 87, 89, 93.

L15 Complex Numbers

Reading: Section 2.4

Exercises (2.4), page 150: 1, 2, 3, 4, 5, 6, 9, 11, 15, 16, 19, 21, 25, 27, 33, 35, 37, 41, 43, 45, 52, 54, 55, 57, 58, 59, 61, 63, 65, 66, 68, 77,79, 81, 83, 85, 88 a, 89, 91, 92, 95.

L16 Zeros of Polynomial Functions

Reading: Sections 2.5 and 2.6

Exercises (2.5), page 162: 2, 3, 4, 9, 11, 14, 15, 20, 25, 30, 33, 41, 43, 48, 54, 55, 60, 61, 64, 68, 95, 98, 99, 100, 101, 102, 103 a, b, 105, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 119, 120, 121, 123.

Exercises (2.6), page 175: 1, 2, 3, 10, 13, 15.

L17 Rational Functions

Reading: Section 2.6

Exercises (2.6), page 175: 19, 21, 23, 27, 29, 31, 37, 39, 40, 41, 42, 72 a, 78, 81.

L18 Nonlinear Inequalities

Reading: Section 2.7

Exercises (2.7), page 185: 1, 2, 7, 11, 23, 26, 28, 29, 35, 37, 39, 40, 44, 46, 52, 53 no calc, 55 no calc, 68, 70, 71, 75, 80, 86, 87a.

L19 Linear and Nonlinear Systems of Equations

Reading: Sections 7.1 and 7.2

Exercises (7.1), page 475: 1, 2, 4, 5, 7, 10, 16, 19, 23, 26, 30, 31, 32, 33, 38, 41, 54, 57, 58, 63, 65, 67, 68, 69, 70.

Exercises (7.2), page 486: 1, 8, 9, 12, 16, 25, 28, 30, 31, 33, 41, 42, 43, 49 a, b, 51, 61, 64.

L20 Exponential Functions

Reading: Section 3.1

Exercises (3.1): page 206: 13, 14, 15, 16, 19, 20, 21, 23, 25, 27, 29, 31, 37, 39, 41 no calc, 43 no calc, 44 no calc, 45, 47, 49, 53, 57, 59, 62 a, 63 a, 67, 68, 69, 71, 73, 78, 79.

L21 Logarithmic Functions

Reading: Section 3.2

Exercises (3.2), page 216: 1, 2, 4, 5, 7, 13, 15, 16, 17, 18, 19, 20, 25, 26, 27, 28, 29, 31, 33, 37, 38, 39, 40, 41, 43, 45, 47, 48, 49, 53, 61, 62, 63, 64, 65, 66, 67, 70, 77, 84, 85, 86, 88.

L22 Properties of Logarithms

Reading: Section 3.3

Exercises (3.3), page 223: 2, 4, 5, 13, 15, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 53, 58, 69, 73, 75, 77, 79, 81, 91, 92, 93, 97, 101, 102, 104.

L23 Exponential and Logarithmic Equations

Reading: Section 3.4

Exercises (3.4), page 233: 1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 33, 35, 36,42, 44, 52, 55, 56, 57, 60, 72, 74, 77, 78, 79, 83, 85, 89, 90, 91, 92.

L24 Exponential and Logarithmic Models

Reading: Section 3.5

Exercises (3.5), page 243: 1, 5, 6, 7, 12, 15, 21, 23, 25, 27, 31, 33, 35 a, b, d.

L25 Radian and Degree Measure

Reading: Section 4.1

Exercises (4.1), page 267: 1, 2, 3, 4, 5, 6, 7, 9, 11, 14, 15, 17, 21, 23, 25, 27, 29, 33, 35, 37, 51, 53, 55, 58, 60, 63, 65, 69, 70, 71, 72, 73, 74, 75, 77, 78,.

L26 Trigonometric Functions and the Unit Circle

Reading: Section 4.2

Exercises (4.2), page 275: 2, 4, 7, 9, 10, 11, 12, 19, 21, 23, 31, 33, 35, 37, 39, 41, 49, 51, 52, 53, 54, 55, 60, 61.

L27 Right Triangle Trigonometry and Trigonometric Functions of Any Angle

Reading: Sections 4.3 and 4.4

Exercises (4.3), page 284: 1, 2, 3, 4, 5, 13, 21, 23, 40, 45, 57, 59, 61, 63, 64, 65, 67, 68, 72, 75, 76, 77, 78, 79, 80, 81.

Exercises (4.4), page 294: 1, 2, 3, 4, 5, 6, 8, 11, 16, 19, 21, 24, 27, 31, 34, 45, 49, 51, 53, 67, 72, 91, 97.

L28 Graphs of Sine and Cosine Functions

Reading: Section 4.5

Exercises (4.5), page 304: 1, 2, 3, 4, 5, 7, 9, 13, 15, 17, 19, 21, 23, 25, 27, 29, 35, 39, 43, 49, 51, 57, 65, 69, 72, 75, 78, 79, 89, 91.

L29 Graphs of Other Trigonometric Functions

Reading: Section 4.6

Exercises (4.6), page 315: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 27, 29, 35, 37, 57, 58, 59, 60, 85, 87, 88.

L30 Inverse Trigonometric Functions

Reading: Section 4.7

Exercises (4.7), page 324: 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 17, 19 (no calc), 37, 38, 39, 41, 43, 45, 47, 49, 51, 55, 59, 63, 67, 71, 75, 76, 79, 81, 99, 105, 106, 107, 108.

L31 Applications

Reading: Section 4.8

Exercises (4.8), page 334: 1, 5, 9, 13, 17, 19, 21, 22, 24, 29, 30, 32, 34, 35, 39, 40.

L32 Using Fundamental Identities

Reading: Section 5.1

Exercises (5.1), page 353: 1, 2, 3, 4, 5, 6, 8, 13, 15, 16, 17, 18, 21, 27, 29, 35, 40, 41, 44, 50, 53, 56, 57, 61, 71, 75.

L33 Verifying Trigonometric Identities

Reading: Section 5.2

Exercises (5.2), page 360: 1, 2, 3, 4, 5, 6, 7, 8, 12, 15, 20, 21, 22, 26, 30, 32, 36, 38, 52, 55, 56, 63, 64, 67.

L34 Solving Trigonometric Equations

Reading: Section 5.3

Exercises (5.3), page 370: 1, 2, 3, 4, 8, 11, 18, 20, 21, 24, 26, 36, 37, 40, 43, 47, 60, 64, 65, 67, 69, 71.

L35 Sum and Difference Formulas

Reading: Section 5.4

Exercises (5.4), page 378: 1, 2, 3, 4, 5, 6, 8, 12, 18, 24, 27, 29, 33, 35, 39, 41, 47, 51, 53, 57, 59, 65 (part 1), 69, 73, 81, 82.

L36 Multiple-Angle and Product-to-Sum Formulas

Reading: Section 5.5

Exercises (5.5), page 388: 1, 2, 4, 5, 7, 9, 11, 15, 21, 25, 27, 35, 41, 45.

THE END!