

Math 112 Homework

Fall 2018 Semester

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Class 1 Wed. Aug. 22

1. Study Section 1.1 (Four Ways to Represent a Function) in our textbook (*Calculus* by James Stewart, 8th edition).
2. Practice problems on page 19: 1-9 (odd) & 25. (Even though practice problems are not graded, work them to prepare for quizzes and tests.)
3. Study Appendix A and work the following practice problems on page A-9: 1-11 (odd); 43-55 (odd); 61-65 (odd).
4. **Quiz 1:** Work the problems in the booklet that I handed out today and return them to me on Monday. Answer every question: If you do not know how to solve a particular problem, do what you can or state that you do not know how to work the problem. You will receive a grade of 10/10 points if you return the booklet (with full responses) to me on **Monday, August 27**. Otherwise, your grade for Quiz 1 will be 0/10 points.
5. **Quiz 2:** You will receive a grade of 10/10 points if you complete the online survey (with full responses) about your high school background by 5 pm on **Monday, August 27**. If you do not complete this survey by 5 pm on Monday, your grade for Quiz 2 will be 0/10. (I will not be privy to the information that you provide.) We in the Math Department are collecting this data so that we can make sure the classes we offer are tailored to the needs of students attending Rhodes.

Click on https://survey.col.qualtrics.com/jfe/form/SV_79xyZABLnO77rcF to obtain the survey.

Class 2 Fri. Aug. 24

1. The Math 113 (Precalculus and Differential Calculus) tutorials will all start next week. The tutorials will be held in the Math Support Center on the second floor, which is the room directly above our classroom OH 225).
 2. Continue studying Section 1.1.
 3. Practice problems on page 21: 27-63 (odd).
Remark. The numbers **27**, **35**, **53**, and **61** are printed in red. This indicates that hints are given for these particular problems at the website: <http://stewartcalculus.com/>.
(Hints are not available for the 8th edition, but they are for the edition CALCULUS 7E. Click on HOMEWORK HINTS. Unfortunately, the numbering of the problems differs from the 8th edition.)
 4. Study Appendix B and work the following practice problems on page A-15: 1, 3, 7, 17, 19, 21, 25, 27, 29, 31, 33, 35, 37, 39, & 41.
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Class 3 Mon. Aug. 27

1. Read Section 1.2.
 2. Practice problems on p. 33: 1, 3, 4, 7, & 15.
 3. **Quiz 3** on the practice problems assigned in Classes 1, 2, & 3 on Friday.
 4. Examples of graphs of polynomials: [Polynomials](#).
 5. Examples of graphs of rational functions: [Rational Functions](#).
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Class 4 Wed. Aug. 29

1. Reminder: **Quiz 3** on the practice problems assigned in Classes 1 and 2 on Friday. Do not forget to review the distance formula, the equations of lines in Appendix B, and the relationship between the slopes of parallel and perpendicular lines.

Note. I will not quiz you Friday on the practice problems assigned on p. 33.

2. Review basic trigonometry: Read pp. A24-A28 and pp. 31-32.

Class 5 Fri. Aug. 31

1. **Quiz 3** (10-minute quiz during the last 15 minutes of class.) Calculators are not allowed on the quiz. (Generally speaking, I construct quizzes and tests so that a calculator is not needed.)

2. Examples of graphs of polynomials: [Polynomials](#).

3. Examples of graphs of rational functions: [Rational Functions](#).

4. Examples of graphs of power functions: [Power Functions](#).

5. Brush up your skills in trig this weekend by studying pp. 31-32, pp. A24-A31, and working the following practice problems: 1-37 (odd) on p. A32 and 5, 6 on p. 33.

Mon. Sept. 4 Labor Day Recess

Class 6 Wed. Sept. 5

1. Study pp. 31-32, pp. A24-A31, and work the following practice problems: 1-37 (odd) on p. A32 and 5, 6 on p. 33.

2. Turn in Quiz 4 on Friday: Click on [Quiz 4](#) to print out the quiz.

Class 7 Fri. Sept. 7

1. **Quiz 4** is due today.

2. Turn in Quiz 5 on Monday: Click on [Quiz 5](#) to print out the quiz.

3. Read Section 1.3 for Monday.

4. **Exam 1 on Friday, Sept. 21** will cover the topics discussed in class and the problems (practice, quizzes, worked in class) from the following sections and appendices:

(i) Section 1.1 & Appendix A.

(ii) Section 1.2, Appendix B, & Appendix D.

(iii) Section 1.3 & (iv) Section 1.4.

Class 8 Mon. Sept. 10

1. **Quiz 5** is due today. The solutions to Quiz 4 can be found at

http://facstaff.cbu.edu/~lbecker/112_Hpg.htm

2. Study Section 1.3. Today we will talk about various ways of combining new functions to create a new function.

The most difficult is the *composition* of two functions on pp. 40-42. Study these pages carefully.

3. Practice problems on p. 44: 31-39 (odd), 43, 45, 55, 57, & 59.

Class 9 Wed. Sept. 12

1. **Quiz 6** (10-minute quiz during the last 15 minutes of class) on Friday over the problems assigned in Class 8.

2. Study Section 1.4.

3. Practice problems on p. 53: 1 & 3.

Class 10 Fri. Sept. 14

1. **Quiz 6.**
2. Examples of transformations of functions: [Transformations](#).
3. Practice problems on p. 42: 1-21 (odd).
4. Begin reading about exponential functions in Section 1.4.

Class 11 Mon. Sept. 17

1. **Exam 1 on Friday.**
2. Study Section 1.4.
3. Practice problems on p. 53: 1, 3, 5, 6, 11-23 (odd).
4. Click on to see information about [Euler's number e](#).

Class 12 Wed. Sept. 19

1. **Exam 1 on Friday** will cover the topics discussed in class and the problems (practice, quizzes, worked in class) from the following sections and appendices:
 - (i) Section 1.1 & Appendix A.
 - (ii) Section 1.2, Appendix B, & Appendix D.
 - (iii) Section 1.3.
 - (iv) Section 1.4.
2. For Monday, read Section 1.5. Practice 1-27 (odd) on p. 66.

Class 13 Fri. Sept. 21**Test 1**

Class 14 Mon. Sept. 24

Quiz 7 on Friday covers Section 1.5 and the following practice problems on p. 66: 1-27 (odd), 33, 34, 35-41 (odd), 47-53 (odd).

Class 15 Wed. Sept. 26

1. Study logarithmic functions in Section 1.5. Memorize [6] and [7] on p. 59. Memorize the laws of logarithms on p. 60.
2. Memorize all of the boxed-in definitions and formulas for the **natural logarithmic function** on p. 60-63. This function is very important in engineering and the mathematical sciences.
3. The quiz on Friday will cover Section 1.5 (except for inverse trig functions, which will be discussed at a later date) and the practice problems assigned in Class 14.

Class 16 Fri. Sept. 28

1. Quiz 7 on Monday will cover the practice problems assigned in Class 14; the topics covered in Classes 14, 15 and 16; the facts listed in Class 15 that are to be memorized; and the examples and problems worked in class.
2. Study Section 2.1.
3. Practice problems on p. 82: 3 & 5.

Class 17 Mon. Oct. 1

1. **Quiz 7** (in class)
2. **Quiz 8**, which is due Wednesday, is to work **Problem 6 on p. 82**. (First, copy the problem. Write on one side only and be neat so that I can read and follow your work). For part (a) compute each of the average velocities with the aid of a calculator. Then answer part (b). Then rework the problem using the “ Δt method” as I showed you with Problem 5 on page 82.
3. Begin reading Section 2.2.

Class 18 Wed. Oct. 3

1. Turn in **Quiz 8**.
2. Study Section 2.2.
3. Practice on p. 92: 5, 7, 11, 15, 21, 23, & 27.

Class 19 Fri. Oct. 5

1. Begin reading Section 2.3.
2. Practice on p. 94: 31, 33, 35, 37, 39, 41, 43, 45, & 52.
3. **Quiz 9 on Monday** covering the practice problems assigned on pages 92-94 in Classes 18 & 19. (The actual problems on the quiz may be slightly altered.)

Bring a calculator to use on this quiz.

Class 20 Mon. Oct. 8

1. **Quiz 9**
2. Study Section 2.3.
3. Practice problems on p. 102: 1, 3, 5, 6, & 11.
4. **Quiz 10**: On Wednesday, turn in the following problems on p. 102: 2, 4, 7, & 9.

(Copy the problem before you work it. Write on one side only and be neat and organized so that I can read and follow your work. Staple all pages together in the upper left-hand corner. Put the problems in order. I will deduct points if you do not follow these simple requests.)

Class 21 Wed. Oct. 10

1. Turn in **Quiz 10 on Friday** (change of date)
2. Continue studying Section 2.3.

Class 22 Fri. Oct. 12

1. **Quiz 10 due**.
2. Begin reading Section 2.5. (Skip Section 2.4.)
3. **Quiz 11**: On Wed., Oct 17, turn in the following problems on p. 102: 14, 16, 17, 23, & 24. (For the odd problems, show how to obtain the answers in the textbook.)

Monday Oct. 15 Fall Recess

Class 23 Wed. Oct. 17

1. **Quiz 11 is due today**.
2. More practice problems on p. 103: 33, 35, 37, 39, 41, 42, 25, & 51.

3. Study about **continuous functions** in Section 2.5.
 4. Practice problems on p. 124: 1-27 (odd).
 5. **Test 2** next Wednesday: Sections 1.5, 2.1, 2.2, 2.3, 2.5, & 2.7.
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Class 24 Fri. Oct. 19

1. Study Section 2.7 (skip Section 2.6 for now).
2. Practice problems on p. 149: 31-43 (odd).
3. **Quiz 12 problems for Monday**: **P1** (#15 on p.124); **P2** (#18 on p.124); **P3** (#31 on p.149); **P4** (#36 on p.149); **P5** (#38 on p.149).

(Copy the problem before you work it. Write on one side only and be neat and organized. Stable all pages together in the upper left-hand corner. Put the problems in order. This is a **quiz**; so you may not consult others about these particular problems.)

Class 25 Mon. Oct. 22

1. **Quiz 12 is due today.**
 2. For Test 2 study the parts of Section 2.7 that we have covered today and last Friday.
 3. **Test 2** on Wednesday covers Sections 1.5, 2.1, 2.2, 2.3, 2.5, and what we have covered so far in Section 2.7.
 4. To help prepare for Test 2, work the **Test 2 (practice)**.
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Class 26 Wed. Oct. 24

Test 2

Class 27 Fri. Oct. 26

1. Study the problem of finding a tangent line to a curve on pp. 140-142.
 2. Study how to find the (instantaneous) rate of change of a function on pp. 145-148.
 3. Practice problems on p. 148: 3, 5, 7, 21, 27, 47, & 51.
 4. Begin reading Section 2.8.
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Class 28 Mon. Oct. 29

1. Study Section 2.8.
2. **Quiz 13 problems for Wednesday**: **P1** (#6 on p.148); **P2** (#49 on p.150); **P3** (#24 on p.162).

(Copy each problem before you work it. Write on one side only and be neat and organized. Stable all pages together in the upper left-hand corner. Put the problems in order.

Class 29 Wed. Oct. 31

1. **Quiz 13 due.**
 2. Study Section 3.1.
 3. Practice problems on p. 180: 3-15 (odd) & 33.
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Class 30 Fri. Nov. 2

1. Study Section 3.1.
2. Practice problems on p. 180: 17-31 (odd); 34, 35, 45, 49, 51, & 53.
3. **Quiz 14 next Wednesday** on the practice problems assigned on p. 180 (Classes 29 & 30).

Class 31 Mon. Nov. 5

1. **Quiz 14 on Wed** on all of the practice problems assigned on pp. 180-181 (see Classes 29 & 30).
2. Begin studying Section 3.2.

Class 32 Wed. Nov. 7

1. **Quiz 14**
2. Study Section 3.2.
3. **Quiz 15 on Monday** on the practice problems assigned today and on Friday.
4. Practice problems on p. 181: 37, 55, & 59.
5. Practice problems on p. 188: 1, 2, 3, 5, 11, 13, 15, 19, 23, 27, 33, 41, & 43.

Class 33 Fri. Nov. 9

1. Memorize the differentiation formulas listed in the table on the M112 website:
<https://www.brainiac tutoring.com/calculusi> .
2. Practice problems on p. 189: 45, 46, 47, 51, 59, & 60.
3. **Quiz 15 on Monday** on the practice problems assigned on p. 181, p. 188, p. 189 (see above and Class 32) and on the aforementioned differentiation formulas.
4. Study pp. 190-193 in Section 3.3.

Class 34 Mon. Nov. 12

1. **Quiz 15** (last 10 minutes of class).
2. Study all of Sec. 3.3.
3. Practice problems on p. 196: 1-15 (odd); 19, 23, 25(a), 27(a), 29, 31, 33, 35, 37, 39, 41, 43.
4. **Quiz 16 on Friday**: updated differentiation formulas & rules (see <https://www.brainiac tutoring.com/calculusi>) & this week's practice problems.

Class 35 Wed. Nov. 14

1. Study Section 3.4.
2. More practice problems for Quiz 16 on Friday: On p. 204, practice 1-25 (odd).

Class 36 Fri. Nov. 16

1. **Quiz 16**
2. Finish studying Section 3.4 & begin reading Section 3.6. (Section 3.5 will be covered in Math 122).
3. **Quiz 17 for Monday**: This is a quiz! You may use your textbook & class notes; but you may not use the Internet to obtain answers. Moreover, do not work or consult with anyone else.
On p. 204, turn in 8, 14, 32, 36, & 60. First copy the problem. Write on one side only. Simplify all answers.

Class 37 Mon. Nov. 19

1. **IDEA online class survey (last 20 minutes of class)**. Bring the device that you will use to complete the survey. Check your access to Wi-Fi beforehand.
2. **Quiz 17 due today**.
3. **Exam 3** on Friday, Nov. 30: Sections 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, & 3.6.

4. Study Section 3.6. To prepare for Exam 3 dealing with this section, practice the following problems on p. 223: 3-21 (odd); 25, 27, 29, 33, 37, 39, 43, & 45.

Wed. Nov. 21

Thanksgiving Recess

Fri. Nov. 23

Thanksgiving Recess

Class 38 Mon. Nov. 26

1. **Exam 3 on Friday covers Sections 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, & 3.6.** Note the following:
 - (a) Memorize the derivative formulas & the differentiation rules: click on <https://www.brainiac tutoring.com/calculusi> and then on "Tables of Derivatives and Rules (rev. 11/28/18)".
 - (b) Take Test 3 (practice) at <https://www.brainiac tutoring.com/calculusi>.
 2. Study Section 4.1.
 3. To prepare for the portion of the Final Exam (comprehensive) dealing with Section 4.1, practice the following problems on p. 283: 3, 5, 29, 30, 31, 35, 37, 41, 43, 44, 47, 48, 49, 53, & 60.
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Class 39 Wed. Nov. 28

1. Reminder (assigned Monday) To prepare for the portion of the Final Exam that deals with Section 4.1, practice the following problems on p. 283:
3, 5, 29, 30, 31, 35, 37, 41, 43, 44, 47, 48, 49, 53, & 60.
As an application of the **Closed Interval Method** on p. 281, work Problem 7 on p. 337 (in Section 4.7).
 2. Begin reading Section 4.3 (skip Section 4.2 because it is covered in Math 122).
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Class 40 Fri. Nov. 30 **Exam 3**

Class 41 Mon. Dec. 3

1. Study Section 4.3.
 2. To prepare for the portion of the Final Exam (comprehensive) dealing with Section 4.3, practice the following problems on p. 301: 7, 9, 11, 12, & 17.
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Class 42 Wed. Dec. 5 (last day of classes)

1. To prepare for the portion of the Final Exam dealing with Section 4.7, study the applications worked out in class and practice the following problems.
 2. On p. 337, practice 2, 3, 7, & 15.
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Final Comprehensive Exam: Monday, December 10, 5:30 p.m.

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