

Classical Algebra (Math 326)

Assignments

Fall Semester, 2002

Assignments are listed by the **date due**.

PDF and DVI (requires TeX^1 software) versions of this page are available for printing.

Most of these assignments are simply exercises designed to prepare you for the quizzes and the written assignments. Those which are to be submitted as written assignments are so labeled. While you may find it helpful to discuss the exercises with others, no collaboration is permitted on the written assignments.

Wed., Dec. 18:

Final Exam 3:30 – 5:30

Wed., Dec. 11:

Review Session: bring questions.

Expect a **short quiz**.

Mon., Dec. 9:

Written assignment No. 5 (also available as PDF or DVI) is due.

Fri., Dec. 6:

Read § 28C

Exercises:

417: 8, 10, 12

421: 9

424: 1, 5, 6, 9, 12

Wed., Dec. 4:

Read §§ 24B, 28B

Exercises:

350: 10

356: 6, 10

361: 5

416: 3, 5, 7

421: 1, 3, 7

Mon., Dec. 2:

Read §§ 24A, 28A

Exercises:

307: 9, 12 – 14

309: 2(ii, iii), 3

350: 2, 4, 6 – 8

356: 2, 5

416: 2

¹URI: <http://www.tug.org/>

Wed, Fri., Nov. 27, 29:

Recess

Mon., Nov. 25:

Written assignment No. 4 (also available as PDF or DVI) is due.

Fri., Nov. 22:

Read § 23A

Exercises:

263: 7, 10

304: 4 – 6

309: 2(i)

Expect a pop quiz.

Wed., Nov. 20:

Read § 20B

Exercises:

258: 6

262: 5, 6

303: 1 – 3

Mon., Nov. 18:

Read § 20A

Exercises:

249: 14

251: 8, 9

257: 1 – 3

262: 1 – 4

Fri., Nov. 15:

Read §§ 16C, 16D

Exercises:

249: 8 – 10, 12

250: 2

251: 4, 5

Wed., Nov. 13:

Read §§ 16A, 16B

Exercises:

246: 2, 4

248: 6, 7

251: 7

• Find the smallest positive primitive root modulo the prime 503.

• What is the pattern of repetition in the base 8 “decimal” expansion of each of the rational numbers $17/60$ and $13369/32704$? In each case notice that the base is not coprime to the denominator. Compare these patterns of repetition with the patterns of repetition for the powers of 8 modulo each of the denominators of the two given rational numbers.

Mon., Nov. 11:

Written assignment No. 3 (also available as PDF or DVI) is due. In regard to the fourth problem, an ASCII Chart (also available as PDF or DVI) will be helpful to those who are previously unfamiliar with ASCII codes.

Fri., Nov. 8:

Read §§ 15C, 15D

Exercises:

243: 5, 8

246: 1

163: 18

- What is the pattern of repetition in the decimal expansion of the rational number $11/91$?
- Find the smallest positive primitive root modulo the prime 89.

Wed., Nov. 6:

Read §§ 15A, 15B

Exercises:

234: 3

236: 5

238: 7, 9

241: 1

243: 6, 7

Mon., Nov. 4:

Read Ch 14

Exercises:

169: 6

200: 7, 9, 10, 11

233: 1, 2

Fri., Nov. 1:

Read § 12 A

Exercises:

163: 14, 16, 17

169: 5

196: 3

Wed., Oct. 30:

Read § 10B

Exercises:

158: 3, 4

163: 10, 12, 13

166: 2

169: 4

Mon., Oct. 28:

Read §§ 9F, 10A

Exercises:

141: 16

145: 12, 13

147: 4

154: 3

158: 1, 2

Fri., Oct. 25:

Read §§ 9D, 9E

Exercises:

138: 10, 13, 14

141: 3 – 7

144: 8, 9

147: 2

Wed., Oct. 23:

Read §§ 9A, 9B, 9C

Exercises:

123: 13, 15, 17

125: 5, 6

136: 2, 3, 8, 9

Mon., Oct. 21:

Read §§ 8A, 8B

Exercises:

89: 5 – 7

121: 1 – 3, 5, 7

125: 3

Fri., Oct. 18:

Midterm Test

Wed., Oct. 16:

Review Session: Bring questions.

Mon., Oct. 14:

Written Assignment No. 2:

1. Find *all* solutions that are incongruent (mod 10) of each of the following congruences:
 - (a) $17x \equiv 1 \pmod{10}$.
 - (b) $47x \equiv 25 \pmod{10}$.
 - (c) $14x \equiv 43 \pmod{10}$.
 - (d) $53x \equiv 74 \pmod{10}$.
 - (e) $15x \equiv 55 \pmod{10}$.
2. Let a , b , and c be integers with not both a, b zero. Prove that if there is an integer point (r, s) on the line

$$ax + by = c,$$

then there is one and only one integer point (x, y) on the line for which

$$0 \leq x < \frac{b}{\gcd(a, b)}.$$

Please remember that written assignments must be typed.

Fri., Oct. 11:

Read §§ 6D, 6E

Exercises:

73: 2

84: 5
86: 1, 3, 4
89: 1 – 3

Wed., Oct. 9:

Read §§ 6A, 6B, 6C

Exercises:

70: 6
72: 3, 5, 6
74: 5 – 7
84: 1, 3, 4

Mon., Oct. 7:

Read §§ 5D, 5E

Exercises:

67: 8
70: 1 – 3
72: 1
73: 1

Fri., Oct. 4:

Read §§ 2E, 2F, 5C

Exercises:

23: 1 – 3
24: 1, 2
54: 30
65: 6
67: 5, 6, 9

Wed., Oct. 2:

Revised office hours:

Mon & Thurs. 3:30 – 4:30
or by appointment.

Read §§ 5A, 5B

Exercises:

54: 25, 26, 29
65: 2, 3, 5

Mon., Sep. 30:

Written assignment No. 1 (also available as PDF or DVI) is due.

Fri., Sep. 27:

Prepare for a short **quiz**.

Begin working on the *written* assignment that is due Monday.

Wed., Sep. 25:

Read § 4C

Exercises:

35: 11
52: 9, 13
53: 19, 20, 21

55: 1

Mon., Sep. 23:

Read § 4B

Exercises:

35: 8, 21

45: 2

50: 4

51: 3

Fri., Sep. 20:

Read §§ 3E, 4A

Exercises:

35: 7

45: 1

50: 3

Wed., Sep. 18:

Prepare for a **5 point quiz** covering material through the last assignment.

Exercises:

29: 6(v)

33: 4(iv)

35: 5

Mon., Sep. 16:

Recess: no class

Fri., Sep. 13:

Do the ff. exercises:

27: 6

27: 7

29: 3

29: 6(iii)

33: 4(ii)

Wed., Sep. 11:

Scan: Chs 1, 2

Read: §§ 3 A, B, C

Do the ff. exercises:

Evaluate the continued fraction $[3, 7, 15, 1, 292]$

$= 3 + 1/(7 + 1/(15 + 1/(1 + 1/292)))$.

Find the continued fraction of the rational number $355/113$.

26: 4

28: 1

Note regarding 9/11 observance: Professor David Janower of the Music Department will conduct the Mozart Requiem with *Albany Pro Musica* as part of a worldwide “Rolling Requiem” at 8:30 a.m. in the Amphitheater at the Hudson Riverfront. For more information, see <http://www.rollingrequiem.org/>.

Our class will meet at the normal time.

Mon., Sep. 9:

Recess: no class

Fri., Sep. 6:

Read the first four sections of the supplementary material on continued fractions (also available as PDF or DVI).

If you wish to enter the writing intensive division of the course (Math 326Z), please be sure to submit the required essay (also available as PDF or DVI) at this class (or earlier).

[UP](#) | [TOP](#) | [Department](#)