Math 251, Fri 4-Dec-2020 -- Fri 4-Dec-2020
Discrete Mathematics
Fall 2020

Friday, December 4th 2020

Topic:: TBD

Test 3 info
 - Logistics
    Taken in moodle (251 Section A for all)
    Uses Respondus web browser-access it from Moodle
      Is there a download?
        I think so
        app is tailored specifically to Calvin's Moodle server
        must be downloaded from within Moodle
      System requirements
        OS: Windows 7 or later, Mac OS 10.10 or later (not a smartphone)
          iPad is not a good option, but is usable---talk with instructor
        webcam and microphone
        reliable internet
      Practice run (quiz with 5 questions) now available
        If you don't have much/any experience using Respondus, Try It!
        Open for test run now, can be used multiple times until Sunday 8 pm

 - Coverage:
    Chapter 8:
      Section 1: modeling with recurrence relations
      Section 2: homogeneous linear kth degree recurrences w/ const. coeffs
        after one example of nonhomog. I decided not to assign any to solve
        should be able to
          identify the degree
          distinguish between linear and nonlinear recurrences
          distinguish between homogeneous and nonhomogeneous
          solve homogeneous recurrences with initial conditions
      Section 3: master theorem, solving divide-and-conquer recurrences

    Chapter 4:

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      Section 1:
        Division algorithm
        The set Z_m
        Notation and concepts:
          a divides b
          gcd(a, b)
          a mod n, and arithmetic in mod n
          a is congruent to b (mod m)
      Section 2: modular exponentiation (only)
      Section 3:
        primes:
          definition
          how many there are
          determining if p is one
          Fundamentall Theorem of Arithmetic
        gcd(a, b)
        Euclidean algorithm and extended Euclidean algorithm
      Section 4:
        solving linear congruences
        finding multiplicative inverse mod m, or recognizing their absence
        Fermat's Little Theorem
      Section 5:
        comfort with UPC, ISBN 10, and other check-digit problems
      Section 6: RSA encryption and decryption
      misc (not mentioned in text):
        Euler's totient function: what it gives, how to evaluate it
        Euler's Theorem

- additional practice problems
    Section 8.1: Problem 9
    Chapter 8 Review (pp. 566-567): 7, 8
    Chapter 8 Suppl. Exercises (pp. 567-569): 1
    Section 4.6: Problems 25, 26
    Calculate Euler phi function for inputs 13, 55, and 108
    use modular exponentiation to calculate:  12^(43) mod 713
    Chapter 4 Review (p. 307): 1, 2, 9ad, 10-12, 15, 16
    Chapter 4 Suppl. Exercises (pp. 307-309): 3, 5, 20, 25, 26, 42
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