

Math 109-D04
Test 2

SUBMISSION DEADLINE: 2:30pm Pacific Time
Submit on D2L

Number of Questions: 6
Total Marks: 18

Show all your work for full marks.

You MAY use the course website (notes, videos etc) and your own notes

You may NOT copy from others (classmates, tutors, Chegg etc)

Submit jpg or pdf files

Feel free to handwrite your solutions and take photos of your work

1. [3 marks] Graph the feasible set for the following inequalities:
 $x \geq 0$, $y \geq 2$, and $y \leq 8 - 2x$

2. [3 marks] A passcode has 5 digits, each chosen from 0 through 9.
Find the probability that a passcode doesn't use the digit 0 and has no repeated digits.

3. [2 marks] At a gym:
70% of clients use the treadmill
40% of clients lift weights
15% of clients use the treadmill and lift weights.
Find the probability that a client who uses the treadmill also lifts weights.

4. [3 marks] Manufacturing employees follow protocol 90% of the time.
When protocol is followed, 3% of manufactured items are defective. When protocol is not followed, 17% of manufactured items are defective. What is the probability that protocol was followed when a defective item was manufactured?

5. [3 marks] A sales rep has a 22% chance of making a sale in each meeting.
Find the probability that the sales rep makes a sale in at most two of her next five meetings.

6. [4 marks] An envelope contains thirteen \$5 bills and seven \$50 bills. You pay \$20 and randomly draw a bill from the envelope.
Let X be your net winnings (in dollars).
 - a) Find the probability distribution of X
 - b) Find the expected value of X