

NYC College of Technology, MAT1272 Practice Exam II, Halleck, Spring 2014
 Show all work and answers in your blue book. Fold your exam sheet together with your handwritten formula sheet (worth 10% of the exam!). You may use a scientific or graphing calculator but not advanced features such as the binomial probabilities.

1. (15 pts) There are 3 red balls and 2 blue balls in a box.
 - a) Draw a probability tree for 2 balls selected randomly from the box if the selection is done with replacement.
 - b) Draw a probability tree for 2 balls selected randomly from the box if the selection is without replacement.
 - c) If 3 balls are selected without replacement, what is the probability that the first ball is red, the second and the third balls are blue?

2. (15 pts) If a bent coin with probability of a head .3 is tossed 5 times, find the probability of getting
 - a) exactly 4 heads b) exactly 5 heads c) at most 3 heads [use results from parts a) and b)].

3. (15 pts) In a statistics club, there are 7 sophomores, and 3 freshmen.
 - a) In how many ways can the club form a committee of 3 students without regard to rank?
 - b) In how many ways can the club form a committee which consists of 2 sophomores and 1 freshman?
 - c) The club has decided to elect a president, vice president, treasurer and secretary. In how many ways can they do this if the pres and vp must be sophomores and the treasurer and secretary must be freshman?

4. (15 pts) A 21 sided die is rolled (icosahedron). What is the probability that the role is
 - a) even? b) a multiple of 3? c) even and a multiple of 3?
 - d) even or a multiple of 3? [use results from parts a), b) & c)]

5. (15 pts) The scores of an exam were normally distributed with a mean of 42 and a standard deviation of 26. The following chart shows cutoffs for student scores (e.g., a student who scores better than a 10 but less than 30 will receive a D):

scores	10	30	40	50	60	70	80	90
grade	D	C	C+	B-	B	B+	A-	A

- a. What is the chance that a random student got a B or higher?
 - b. What is the chance that a random student failed the exam?
- Note: you must draw separate pictures for each part to get credit!

6. (15 pts) The height of a female black bear is normally distributed with a mean of 26 inches and standard deviation of 2.5 inches. If a female bears is selected at random, what is the probability that her average height is
 - a. below 22 inches?
 - b. between 24 and 28 inches?

Note: you must draw separate pictures for each part to get credit!