

ENGR 0020 PROBABILITY AND STATISTICS FOR ENGINEERS I
Recitation Week 2

Teaching Assistant:

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Office hour: Thursday 2:00 – 3:00pm, 1023 Benedum hall

Goals:

1. To help to understand the lecture and homework questions.
2. To take quizzes for getting the feedback of the class. The quizzes will take 10 mins at the end of recitation.

1. (Counting; Poker)

Consider choosing a 4-card poker hand from a standard deck of 52 playing cards. What's the probability of having two of a kind (it allows two pairs, three of a kind or even all of a kind)?

2. (Probability; Ex 2.56, P60)

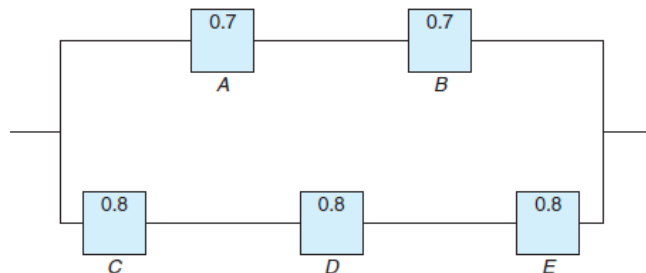
An automobile manufacturer is concerned about a possible recall of its best-selling four-door sedan. If there were a recall, there is a probability of 0.25 of a defect in the brake system, 0.18 of a defect in the transmission, 0.17 of a defect in the fuel system, and 0.40 of a defect in some other area.

- (a) What is the probability that the defect is the brakes or the fueling system if the probability of defects in both systems simultaneously is 0.15?
- (b) What is the probability that there are no defects in either the brakes or the fueling system?

3. (Conditional Probability, Independence; Ex 2.93, P71)

A circuit system is given in the following figure. Assume the components fail independently.

- (a) What is the probability that the entire system works?
- (b) Given that the system works, what is the probability that the components **A** is not working?



4. (Bayes Rule; Radar)

If an aircraft is present, radar detects it with probability 0.99; otherwise, radar generates a false alarm with probability 0.1. An aircraft is present 5% of the time. What's the probability that an aircraft is present given the radar signals.