1. **(1 point)** Library/Rochester/setProbability4Conditional/ur_pb_4_13.pg

Urn A has 8 white and 5 red balls. Urn B has 16 white and 10 red balls. We flip a fair coin. If the outcome is heads, then a ball from urn A is selected, whereas if the outcome is tails, then a ball from urn B is selected. Suppose that a red ball is selected. What is the probability that the coin landed heads?

Correct Answers:

- 0.5

2. **(1 point)** Library/Mizzou/Finite_Math/Probability_Bayes_Theorem/Urn(working).pg

One of two urns is chosen at random with one just as likely to be chosen as the other. Then a ball is withdrawn from the chosen urn. Urn 1 contains 5 white and 4 red balls, and urn 2 has 1 white and 4 red balls.

If a white ball is drawn, what is the probability that it came from urn 1?

(**Hint:** Draw a tree diagram first)

Correct Answers:

- 0.735294

3. **(1 point)** Library/Mizzou/Finite_Math/Probability_Bayes_Theorem/Bayes1.pg

A biomedical research company produces 49% of its insulin at a plant in Kansas City, and the remainder is produced at a plant in Jefferson City. Quality control has shown that 1.1% of the insulin produced at the plant in Kansas City is defective, while 0.65% of the insulin produced at the plant in Jefferson City is defective. What is the probability that a randomly chosen unit of insulin came from the plant in Jefferson City given that it is defective?

(**Hint:** Draw a tree diagram first)

Correct Answers:

- 0.380816

4. **(1 point)** Library/UVA-Stat/setStat212-Homework04/stat212-HW04-13.pg

The chartered financial analyst (CFA) is a designation earned after taking three annual exams (CFA I,II, and III). The exams are taken in early June. Candidates who pass an exam are eligible to take the exam for the next level in the following year. The pass rates for levels I, II, and III are 0.57, 0.79, and 0.87, respectively. Suppose that 3,000 candidates take the level I exam, 2,500 take the level II exam and 2,000 take the level III exam. A randomly selected candidate who took a CFA exam tells you that he has passed the exam. What is the probability that he took the CFA I exam?

Probability = _____

Correct Answers:

- 0.315207373271889

5. **(1 point)** Library/UVA-Stat/setStat212-Homework04/stat212-HW04-18.pg

Transplant operations have become routine and one common transplant operation is for kidneys. The most dangerous aspect of the procedure is the possibility that the body may reject the new organ. There are several new drugs available for such circumstances and the earlier the drug is administered, the higher the probability of averting rejection.

The New England Journal of Medicine recently reported the development of a new urine test to detect early warning signs that the body is rejecting a transplanted kidney. However, like most other tests, the new test is not perfect. In fact, 20% of people who do reject the transplant test negative, and 5% of people who do not reject the transplant test positive. Physicians know that in about 25% of kidney transplants the body tries to reject the organ. If the new test has a positive result (indicating early warning of rejection), what is the probability that the body is attempting to reject the kidney?

Probability = _____

Correct Answers:

- 0.842105263157895

6. **(1 point)** Library/UVA-Stat/setStat212-Homework04/stat212-HW04-19.pg

Your favorite team is in the World Series. You have assigned a probability of 61% that they will win the championship. Past records indicate that when teams win the championship, they win the first game of the series 66% of the time. When they lose the championship, they win the first game 25% of the time. The first game is over and your team has lost. What is the probability that they will win the World Series?

Probability = _____

Correct Answers:

- 0.414882976595319

7. **(1 point)** Library/UVA-Stat/setStat212-Homework04/stat212-HW04-14.pg

Bad gums may mean a bad heart. Researchers discovered that 77% of people who have suffered a heart attack had periodontal disease, an inflammation of the gums. Only 34% of healthy people have this disease. Suppose that in a certain community heart attacks are quite rare, occurring with only 11% probability.

A. If someone has periodontal disease, what is the probability that he or she will have a heart attack?

Probability = _____

B. If 38% of the people in a community will have a heart attack, what is the probability that a person with periodontal disease will have a heart attack?

Probability = _____

Correct Answers:

- 0.218693519235735
- 0.581247516885181

8. **(1 point)** Library/UVA-Stat/setStat212-Homework04/stat212-HW04-11.pg

A foreman for an injection-molding firm admits that on 38% of his shifts, he forgets to shut off the injection machine on his line. This causes the machine to overheat, increasing the probability that a defective molding will be produced during the early morning run from 5% to 22%. The plant manager randomly selects a molding from the early morning run and discovers it is defective. What is the probability that the foreman forgot to shut off the machine the previous night?

Probability = _____

Correct Answers:

- 0.729493891797557

9. **(1 point)** Library/ASU-topics/setStat/dueck5_3_6.pg

If $P(A) = 0.65$, $P(B) = 0.45$ and $P(A \text{ and } B) = 0.15$, find the following probabilities:

a) $P(A \text{ or } B) =$ _____

b) $P(\text{not } A) =$ _____

c) $P(\text{not } B) =$ _____

d) $P(A \text{ and } (\text{not } B)) =$ _____

e) $P(\text{not } (A \text{ and } B)) =$ _____

Correct Answers:

- 0.95
- 0.35
- 0.55
- 0.5
- 0.85

10. **(1 point)** Library/ASU-topics/setStat/dueck5_3_5.pg

If A and B are two mutually exclusive events with $P(A) = 0.5$ and $P(B) = 0.4$, find the following probabilities:

a) $P(A \text{ and } B) =$ _____

b) $P(A \text{ or } B) =$ _____

c) $P(\text{not } A) =$ _____

d) $P(\text{not } B) =$ _____

e) $P(\text{not } (A \text{ or } B)) =$ _____

f) $P(A \text{ and } (\text{not } B)) =$ _____

Correct Answers:

- 0
- 0.9
- 0.5
- 0.6
- 0.1
- 0.5

11. **(1 point)** Library/ASU-topics/setProbability/cond10.pg

If $P(F) = 0.4$ and $P(E|F) = 0.9$, then $P(E \cap F) =$ _____

Correct Answers:

- 0.36

12. **(1 point)** Library/NAU/setProbability/Bayes5.pg

On average 68 % of Finite Mathematics students spend some time in the Mathematics Department's resource room. Half of these students spend more than 90 minutes per week in the resource room. At the end of the semester the students in the class were asked how many minutes per week they spent in the resource room and whether they passed or failed. The passing rates are summarized in the following table:

Time spent in resource room	Pass %
None	29
Between 1 and 90 minutes	42
More than 90 minutes	75

If a randomly chosen student did not pass the course, what is the probability that he or she did not study in the resource room?

Answer: _____

Correct Answers:

- 0.446014919513153