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Stats 10

Homework 3

1. a. i)

ii)

iii)

b. Probability of college graduate taking a vacation = = 77.6%

Probability of non-college graduates taking a vacation = = 44.4%

Thus, a college graduate is more likely to take a vacation as compared to a non-college graduate

1. a. P(A or B) = P(A) + P(B) = 0.32 + 0.21 = 0.53

b. P(A or B or C) = P(A) + P(B) + P(C) = 0.32 + 0.21 + 0.23 = 0.76

c. P(Lower than C) = 1 - P(A or B or C) = 1 - 0.76 = 0.24

1. a. P(Student makes more than 8 mistakes in the exam) = 1 - (P(student makes less than 5 mistakes) + P(student makes between 5 and 8 mistakes)   
   = 1 - (0.37 + 0.27)

= 1 - 0.64

= 0.36

b. P(student makes 5 mistakes or more) = 1 - P(student makes less than 5 mistakes)

= 1 - 0.37

= 0.63

c. P(student makes at most 8 mistakes) = P(student makes less than 5 mistakes) + P(student makes between 5 and 8 mistakes)

= 0.37 + 0.27

= 0.64

d. A and B are complementary events as they are disjoint and P(A) + P(B) = 1

1. Events:

A : Individual has the disease

B : The test is positive

Calculating the probability,

P(A) = 0.01 Probability of individual having disease

P( = 0.99 Probability of testing positive when the person is infected

P( = 0.03 Probability of testing positive when the person is not infected

P(A | B) =

=

=

=

= 0.25