Assignment\_2

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17/17 questions complete

# 1. [3 marks] MS 3.36 - pg 105-106

### A

### B

### C

Novice are more likely to fail the fingerprint match test with a lesser probability that the Novice will be right.

# 2. [3 marks] MS 3.52 - pg 111

### A

### B

### C

# 3. [1 marks] MS Theorem 3.1 - pg 113 Prove the theorem in your own words.

## Multiplicative Rule

This can be explained by simply having an x amount of sequences of y amount of numbers.

# 4. [1 marks] MS Theorem 3.2 - pg 114 Prove the theorem in your own words.

## Permutations Rule

This can be proved through the multiplication rule. After one element from a set of K elements has been placed in a position, the element is removed and the set of elements to be chosen from is K-1. After the next is pulled, then the set consists of K-2 elements and so on, until the nth position is filled which is written as (K-n-1) where n is the factorial. Applying the Multiplicative Rule will result in the above equation.

# 5. [1 marks] MS Theorem 3.3 - pg 116 Prove the theorem in your own words.

## Partitions Rule

This is just a variation of the Permutations Rule where there are N elements partitioned into multiple sets. The sets together still contain N amount of elements cumulatively. Through the Multiplicative Rule, you can find the above equation by multiplying the Permutation of N elements by the factorial of cardinality of each set of numbers that you are trying to partition.

# 6. [1 marks] MS Theorem 3.4 - pg 117 Prove the theorem in your own words.

### Combinations Rule

This rule is a variation of the Partitions Rule, where the result is just the number of ways you can take n elements from a Set of N elements. The “two” sets of numbers n + N-n = N so this still follows the Partition’s Rule.

# 7. [3 marks] MS 4.2 - pg 138

### A

### B

### C

# 8. [4 marks] MS 4.12 - pg 143

### A

### B

### C

### D

# 9. [4 marks] MS 4.34 - pg 154

### A

### B

### C

### D

Most of the probability lies within 2 standard deviations of 17.5, which is

# 10. [2 marks] MS 4.46 - pg 158

### A

### B

# 11. [2 marks] MS 4.54 - pg 162

### A

### B

### C

### D

# 12. [2 marks] MS 4.66 - pg 168

### A

### B

This means the mean is less than 1 facility treats hazardous waste on site, and the average is closer to zero for a sample of 10 factories.

### C

# 13. [3 marks] MS 4.78 - pg 173

### A

### B

Y=1, the probability is 2.911% and at Y=2, the probability drops exponentially. This shows, the distribution is very steep and is greater than 0.

### C

# 14. [4 marks] MS 5.2 - pg 191

### A

### B

### C

### D

# 15. [3 marks] MS 5.10 - pg 196

### A

### B

The mean does not change and stays Zero because the limits are circular.

The variance does not change, but is converted to hours, which is 1/12 hours.

### C

The mean does not change and stays Zero because the limits are circular.

The variance does not change, but is converted to seconds, which is 300 seconds.

# 16. [3 marks] MS 5.36 - pg 205

### A

### B

### C

# 17. [5 marks] MS 5.38- pg 205

### A

### B

### C

### D

### E