Math 243 Test 2 Review

Consider the distribution for questions 1-7, where x is the number of hits in a game for a player who will be up to bat 5 times.

x	P(x)
0	.1233
1	.3206
2	.3332
3	.1732
4	.0450
5	.0047

1. Is this a probability distribution?
2. Find and interpret the mean.
3. Find the standard deviation.
4. Find the probability that he will get 3 or more hits in a game.
5. For a season with 132 games, how many games would you expect him to get less than 2 hits?
6. Would it be unusual for him to get 4 or more hits in a game?
7. Find the probability that he will get at least 1 hit.

Consider the production statistic for questions 8-13. A company produces parts that are within an acceptable tolerance to be sold 91.4% of the time. They are sold in a carton of 10 parts.

x	P(x)
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

8. Create the probability distribution for a carton where x = the number of parts within tolerance.
9. Find and interpret the mean.
10. Find and interpret the standard deviation.
11. Would it be unusual for a carton to contain at least two parts that are out of tolerance?
12. For a shipment of 1456 cartons, how many would be expected to be free of defects?
13. For a shipment of 1456 cartons, how many would be expected to have more than one defect?

Consider the dice rolls: 3, 1, 4, 5, 3, 2, 3, 6, 4, 2, 4, 3, 2, 1, 4, 3, 5, 4, 1, 3, 5, 2, 4, 3, 4, 2, 4, 5, 3, 2, 2, 4, 1, 3, 1, 6, 4, 2, 1, 6

14. Create a probability distribution for the data.

X	1	2	3	4	5	6
P(X)						

15. Make a binomial distribution with 5 trials based on the experimental probability for rolling a 3.

X	0	1	2	3	4	5
P(X)						

Consider the tour statistic for questions 16-18. Island Hopper Tours has a 5.6% rate for passengers not showing up.

16. Find the probability that a tour with 88 spots will have more than 85 people.

17. Find the probability that a tour with 64 spots will have everyone show up.

18. Find the probability that a tour with 76 spots will have from 70 – 75 people show up.

Consider the normally distributed medical statistics for questions 19-26. Female patients have a mean glucose level of 157 mmol/L with a standard deviation of 23 mmol/L.

19. Find and interpret the z-score for a patient with a glucose level of 118 mmol/L.

20. Find the proportion of females that have a glucose level below 125 mmol/L. 21. Find the proportion of females that have a glucose level above 180 mmol/L.

22. Find the proportion of females that have a glucose level between 130 - 190 mmol/L.

23. Find the number of female patients a doctor could expect to have a glucose level above 175 mmol/L if she has 1860 female patients.

24. What glucose level would define the 96^{th} percentile?

25. What glucose levels would define the middle 90% of all female patients?

26. What glucose level would define the top 8%?