

## Honors Statistics Chapter 3 Review #2

1. Which numbers could be probabilities?  $-2$ ,  $10/3$ ,  $2/7$ ,  $0$ ,  $1$ ,  $\sqrt{6}$
2. There are 5 freshmen, 8 sophomores, 5 juniors, and 4 seniors in a class. What are the odds that the teacher randomly selects a junior?
3. What is the sample space when tossing a coin and then spinning a spinner that has the numbers 1, 2, and 3?
4. If  $P(A) = .981$ , find  $P(\bar{A})$ . Is  $P(\bar{A})$  unusual?
5. If  $P(B) = 9/37$ , find  $P(\bar{B})$ . Is  $P(\bar{B})$  unusual?
6. Are the events disjoint (mutually exclusive)? Explain.  
Event 1: selecting a female student at Cypress Bay  
Event 2: selecting a student taking statistics
7. Are these events independent? Explain.  
Event 1: Rolling a die                      Event 2: Tossing a coin
8. What is the probability of randomly selecting 3 people that share a birthday?
9. Can you assume independence if you randomly select 8 computer chips from a batch of 1000? Explain.
10. Suppose that 18% of freshmen have a part time job. If 20 freshmen are randomly selected, what is the probability that none of the freshmen have a part time job?
11. Suppose that 7% of sophomores drive to school. If 10 sophomores are randomly selected, what is the probability that at least 1 of the sophomores drives to school?
12. Suppose the defect rate of manufacturing a computer chip is 9%. What is the probability that you select 4 chips and all of them are defective?
13. How many ways can you answer a 5 question multiple-choice quiz if there are 4 choices for each question?
14. How many 3 digit positive odd integers can be made from the numbers 1, 5, 6, 7, and 8?
15. Suppose you have a book collection of 20 books. How many different ways can you arrange 5 of these books on a shelf?
16. Suppose you have a book collection of 20 books and want to donate 8 of them. How many different sets of books could you choose to donate?
17. What is the probability of winning the Florida Lottery. For the Florida Lottery, you select 6 numbers from 1 – 53.
18. How many arrangements can be made with the letters of the word “WHIPPERSNAPPER”?

**For # 19- 21: There are 12 blue cards, 4 red cards, and 7 pink cards. What is the probability of selecting**

19. 2 blue cards in a row (without replacement)
20. a red card and then a pink card (with replacement)
21. a blue card and then a red card (without replacement)

**Use the table for # 22-26: The table lists the smoking habits of a group of college students.**

	<b>Non-smoker</b>	<b>Regular smoker</b>	<b>Heavy Smoker</b>	<b>Total</b>
<b>Men</b>	135	46	5	186
<b>Women</b>	187	21	11	219
Total	322	67	16	405

**If a student is chosen at random, find the probability of getting someone who is a**

22. woman or a non-smoker
23. man or a heavy smoker
24. man, given that he is a non smoker
25. heavy smoker, given that she is a woman
26.  $P(\text{non-smoker} \mid \text{man})$

**Suppose 42% of students have i-phones, 28% have i-pads and 15% have both.**

27. Make a Venn diagram for this situation
28. What percent of students have an i-phone or an i-pad but not both?
29. What percent of students have neither an i-phone nor an i-pad?

**You are off to soccer, and love being the Goalkeeper, but that depends who is the Coach. Sam is coach more often; there is a 0.6 chance he is the coach today. If Coach Sam is coaching, the probability of being Goalkeeper is 0.5. If Coach Alex is the coach today, the probability of being Goalkeeper is 0.3.**

30. Make a tree diagram for this situation.
31. What is the probability you will be Goalkeeper today?

## Answers

1	2/7, 0, 1	28	40%
2.	5 : 17	29	45%
3	H1, H2, H3, T1, T2, T3	31	.42
4	.019; yes		
5	.757; no		
6	No		
7	Yes		
8	.00000751		
9	Yes; 8 is less than 5% of 1000		
10	.0189		
11	.516		
12	.0000656		
13	1024		
14	75		
15	1860480		
16	125970		
17	.0000000436		
18	908107200		
19	.261		
20	.0529		
21	.0949		
22	.874		
23	.486		
24	.419		
25	.0502		
26	.726		