Alg 2 Final Exam Review Probability and Statistics Spring 2015

1. There are 12 different flags that you could put out front of the school building..

a) If there are 12 flag poles out front how many different ways could you arrange all twelve flags on the poles?

b) If three of the poles have broken ropes to hoist the flags, how many different ways could you arrange 9 of the flags?

2. You have 5 cans of paint in the basement and you want to mix some of them together to paint the basement walls..

a) How many different new colors could you create if you mix all 5 of them together??

b) How many different new colors could you create if you can only mix 3 of them together?

3. The push button lock on your car has a password that must be 5 characters long, 3 of the characters must be numbers (0 to 9) and 2 of the characters must be letters of the alphabet.:

a) How many different passwords are possible if Letters and Numbers can't repeat?

b) How many different passwords are possible if Numbers can't repeat but letters can?.

4. Use this set 10 scores: $23, 23, 33, 52, 57, 98, 99, 99, 103, 122$

a) What number is at the 40th percentile?

b) 99 is at what percentile?

c) Find the mean, median, mode, range, and standard deviation.

5. Use the results of the survey shown below of what elementary students are afraid of. You will select one person at random. Find each probability as a fraction.

	Spiders	Darkness	Dogs	Snakes	Total
Boys	30	50	25	70	175
Girls	60	15	10	40	125
Totals	90	65	35	110	300

a) P(boy or spiders) b) P(girl and snakes)

c) P(Dogs or Darkness) d) P(snakes | boy) e) P(girl | spider)

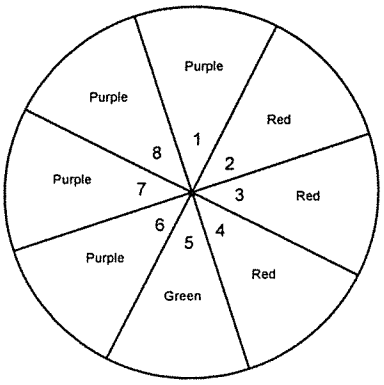
6. In your Halloween bag there are 5 Hershey bars, 6 Snickers, and 4 Reeses. You grab a random piece of candy look at it, put it back into the bag, then grab another random piece of candy. Find each probability as a fraction.

a) P(Hershey bar and then Snickers) b) P(Reeses and then another Reeses)

7. Your refrigerator has the following: 10 Pepsi's, 20 Cokes, and 3 Dr. Peppers. You take one at random and drink it. You are still thirsty so you take another random drink and finish it. Find each probability as a fraction.

a) P(Coke and then another Coke) b) P(Dr. Pepper and then a Pepsi)

8. You will spin the spinner once. Find each probability as a fraction.



a) P(Red or Even)

b) P(Purple or Green)

c) P(Odd and Purple)

d) P(Factor of 6 and Red)

9. You go to the buffet for lunch you have 8 salads to choose from, 10 kinds of pasta, and 11 desserts.

a) If you can only choose one of each (1 salad, 1 pasta, and 1 dessert) how many different 3 item plates could you purchase?

b) If you can choose 1 salad, 2 kinds of pasta, and 3 kinds of desserts find the number of meals you could create.

c) If your tray could only carry 3 salad plates or 2 pasta plates, find the number of ways you could fill your tray with 3 salads or 2 pastas.

10. The probability that I'll have a Coke at the game is $\frac{7}{12}$ and the probability that I'll have a hot dog is $\frac{2}{9}$. Find the probability that I'll have a Coke or a hot dog at the game as a percent rounded to the nearest tenth.

P(Coke or hot dog)=

11. At a party door prizes are given away. Each guest will be given one door prize. The probability that you win tickets to a concert are $\frac{3}{11}$ and the probability that you win a free dinner are $\frac{2}{7}$. Find the probability that you win the tickets or the dinner as a percent rounded to the nearest tenth.

P(Tickets or Dinner)=

12. A survey of 900 people shows that 611 of them approve of the presidents job so far.

a) Find the sample proportion to the nearest whole percent.

b) Find the margin of error in the survey to the nearest whole percent.

c) Find the interval that likely contains the actual population proportion.

13. A national test has a mean of 170 and a standard deviation of 8.

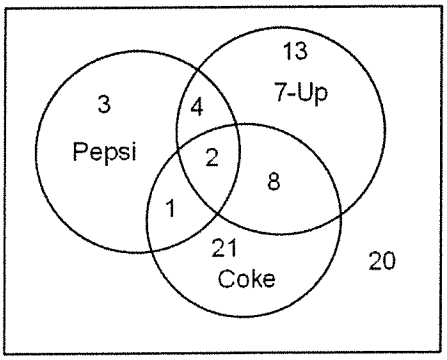
a) Find the percent of tests that are below 186.

b) Find the percent of tests that are above 162.

c) Find the percent of data that are between 154 and 178.

d) If a test is taken at random find the probability that the score is between 146 and 162.

14. Use the Venn Diagram below. Find each probability as a fraction.



a) P(Coke but not Pepsi)

b) P(7-Up or Coke)

c) P(Pepsi and 7-Up)

d) P(Not Pepsi)

e) P(Coke or Pepsi but not 7-Up)

15. Use these two sets of data:

Set A: 95, 91, 88, 76, 103, 100, 86, 79, 83, 84, 96

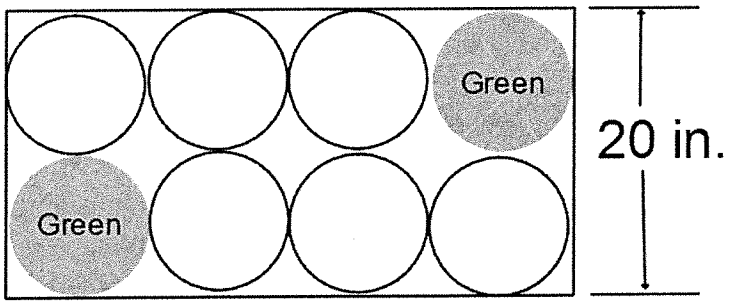
Set B: 23, 29, 21, 30, 19, 27, 18, 34, 30, 28, 16, 33

Which set of data has more variation? Give a reason for your response.

16. At a carnival you try a game where you have to throw an ball onto a board and have it land in one of the cans. If you land in the Green can you win a prize. If you land on the board but not in any can you win a free throw.

a) What is the probability that you land in a Green can? Give your answer as a percent to the nearest tenth.

b) What is the probability that you win a free throw? Give your answer as a percent to the nearest tenth.



1. a) 479,001,600 b) 79,833,600 2. a) 1 b) 10

3. a) 468,000 b) 486,720

4. a) 57 b) 60th percentile
c) $\bar{x} = 1.3$ $Median = 77.5$ $Mode = 23,103$ $range = 99$ $\sigma = 35.7$

5. a) $\frac{235}{300}$ b) $\frac{40}{300}$ c) $\frac{100}{300}$ d) $\frac{70}{175}$ e) $\frac{60}{90}$

6. a) $\frac{30}{225}$ b) $\frac{16}{225}$ 7. a) $\frac{380}{1056}$ b) $\frac{30}{1056}$

8. a) $\frac{5}{8}$ b) $\frac{5}{8}$ c) $\frac{2}{8}$ d) $\frac{2}{8}$

9. a) 880 b) 59,400 c) 101 10. 67.6% 11. 55.8%

12. a) 68% b) ±3% c) 65% to 71%

13. a) 97.5% b) 84% c) 81.5% d) 16%

14. a) $\frac{29}{72}$ b) $\frac{49}{72}$ c) $\frac{6}{72}$ d) $\frac{62}{72}$ e) $\frac{25}{72}$

15. Set A has more variation because its Standard Deviation is bigger ($\sigma = 8.23$) compared to Set B ($\sigma = 5.81$).

16. a) 19.6% b) 21.5%