Alg 2B Final Exam Review **Probability, Outcomes, and Statistics** Spring 2018

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 gallons 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 4 of them together?

b) You have two other empty cans to use, one holds 2 gallons and the other holds 3 gallons. How many different colors could you create if you use the 2 gallon can or you use the 3 gallon can?

3. The push button lock on your car has a password that must be 5 characters long, 3 of the characters must be numbers and 2 of the characters must be letters of the alphabet.(the password is not case-sensitive):

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. You have 6 pieces of gum to choose from. You want to chew 3 of them to make a big bubble. How many ways could do this?

5. Use this set of data: $23, 24, 33, 52, 57, 98, 99, 103, 104, 122$

a) What number is at the 40th percentile?

b) 99 is at what percentile?

6. You are asked to rank 5 songs in order of favorite to least favorite. How many ways could you create this list?

7. There are 5 flavors of ice cream and 4 sauces. You are going to make a milkshake using 3 flavors of ice cream and 2 sauces. How many different milkshakes are possible?

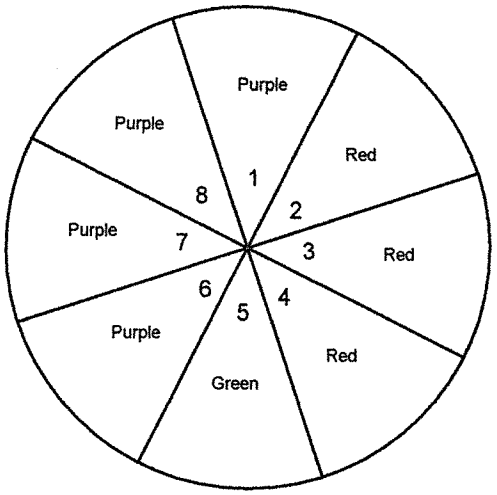
8. Use the results of the survey shown below of what elementary students are afraid of. You will select one person at random. Find each probability as a fraction.

	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)

9. 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) e) P(Multiple of 3 or Purple)

10. In your Halloween bag of candy there are 5 Hershey bars, 6 Snickers, and 4 Reeses. In the morning you reach and 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.Do not reduce.

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

11. In your refrigerator you have the following drinks: 10 Pepsi's, 20 Cokes, and 3 Dr. Peppers. You take one at random and drink it. Realizing you are still thirsty you take another random drink and finish it. Find each probability as a fraction. Do not reduce.

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

12. You go to the buffet for lunch and by a 3 item plate. You have 8 salads to choose from, 10 kinds of pasta, and 11 desserts.

a) If you can only choose one of each how many different 3 item plates could you purchase?

b) You decide to pay extra because you are hungry. Paying extra allows you to choose 2 kinds of salad, 4 kinds of pasta, and 3 kinds of dessert. How many different dinners are now possible?

13. The probability that I'll have a Coke at the ballgame 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. Give your answer as a percent rounded to the nearest tenth.

P(Coke or hot dog)

14. At a party some door prizes are given away to the guests. 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)

15. A survery of 1800 people found that 775 prefer McDonalds.

a) Find the sample proportion as a percent rounded to the nearest whole number.

b) Find the margin of error rounded to the nearest whole number.

c) Find the interval that most likely contains the population proportion as a percent of people that prefer McDonalds.

16. A machine makes toothpicks. A sample of toothpicks has lengths that are normally distributed with a mean of 2.75 inches and a standard deviation of 0.15 inches.

a) What range of lengths contains 68% of tootpicks?

b) What range of lengths contains 95% of toothpicks?

c) What percent of toothpicks have lengths ranging from 2.3 inches to 2.9 inches?

d) If you take a toothpick at random find the probability it is more than 3.05 inches long.

e) What percent of toothpicks are less than 2.6 inches long?

17. A manufacturer claims that 80% of the time their windshield wipers will last 2 years without streaking. You buy 6 wipers for your cars. Find each probability as a percent to the nearest hundredth.

a) P(exactly 3 of the wipers last two years) b) P(at least 5 of the wipers last two years)

ANSWERS Alg 2B Final Exam Review **Probability, Outcomes, and Statistics** Spring 2018

1. a) 479,001,600 b) 79,833,600 2. a) 5 b) 20

3. a) 468,000 b) 486,720 4. 20 5. a) 57 b) 60th percentile

6. 120 7. 60

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

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

10. a) $\frac{30}{225}$ b) $\frac{16}{225}$ 11. a) $\frac{380}{1056}$ b) $\frac{30}{1056}$

12. a) 880 b) 970,200 13. 67.6% 14. 55.8%

15. a) 43% b) ±2% c) 41% to 45%

16. a) 2.6 in to 2.9 in b) 2.45 in to 3.05 in c) 84% d) 2.5% e) 16%

17. a) 8.19% b) 65.53%