

## READ ME!

# AP Statistics Summer Assignment

Name: \_\_\_\_\_

Due Date: August 29/30, 2019

Expected Year of Graduation: \_\_\_\_\_

Welcome to Advanced Placement Statistics. We are looking forward to meeting you in the fall. The following assignment will be collected on the second week of school (AUGUST 26-30, 2019). This is independent work and **should not** be completed with a friend.

**Part 1:** Tell us about you! Be honest and do not use any teacher's names in the document. Write a one-page document (typed, double-spaced, Times New Roman 12 point font) answering the following questions:

1. What do you want me to know about you? What are your hobbies? What are your dislikes/likes? Who are your role models? What makes you unique?
2. How do you feel about math? What math class did you take in the 2018-2019 school year? How did you do? Did you enjoy the class? Are you taking a math class simultaneously with AP Statistics this school year?
3. What do you plan on doing after high school? If it is college, what do you plan on majoring in? Is there a particular place you'd like to go? What is your dream job?
4. Why did you choose this class? Give me at least one example of how you think statistics is used in the real world.

**\*\*\*Attach the typed document to this paper.**

**Part 2:** Below list the ages of the players of a baseball team chosen by you (team's name should start with same :

--

Answer the following questions based on the above data set.

1. Find the minimum age. \_\_\_\_\_
2. Find the maximum age. \_\_\_\_\_
3. Find the median age. \_\_\_\_\_
4. Find the lower quartile for the ages. \_\_\_\_\_
5. Find the upper quartile for the ages. \_\_\_\_\_

6. Draw a box and whisker plot below using your answers for 1 – 5. Don't forget to put a number line below the box and whisker plot.

7. Find the mean age. \_\_\_\_\_

8. Find the interquartile range. \_\_\_\_\_

9. Find the range. \_\_\_\_\_

10. Fill in the following frequency table by counting the ages for each category.

<b>Ages</b>	<b>Tally (Frequency)</b>
<b>19-22</b>	
<b>23-26</b>	
<b>27-30</b>	
<b>31-34</b>	
<b>35-38</b>	

11. Create a histogram (bar graph) using the table you created in #10. Don't forget to label your axes and title your graph.

12. Taylor is playing a game using a die and a spinner. The spinner is divided into 4 equal parts with colors green, red, yellow, and purple. Taylor rolls the die and spins the spinner.

a. What is the sample space?

b. What is the probability the die shows a 2 and the spinner lands on purple?

c. What is the probability the die shows a number less than 3 and the spinner doesn't land on yellow?

d. What is the probability the die shows a multiple of 3 or the spinner lands on green or red?

13. Kelli is playing a game using two dice. She rolls both dice.

a. What is the sample space?

a. What is the probability the first die is a 2 AND the second die is a 5 or 6?

b. What is the probability the first die doesn't show a 2 AND the second die is an odd number?

c. What is the probability the first die shows a number less than 2 OR the second die is a 1 or 6?

d. What is the probability the first die shows a number less than 4 OR the second die shows a multiple of 3?

13. Use the following information to complete the table and determine the missing values.

- 450 Juniors were surveyed
- 425 of the students surveyed play video games
- 275 of the Seniors play video games

	Play Video Games	Play Sports	Total
Juniors			
Seniors			
Total			1000

a. What is the probability a student plays sports?

b. What is the probability a junior plays video games?

c. What is the probability a student is a senior or plays video games?

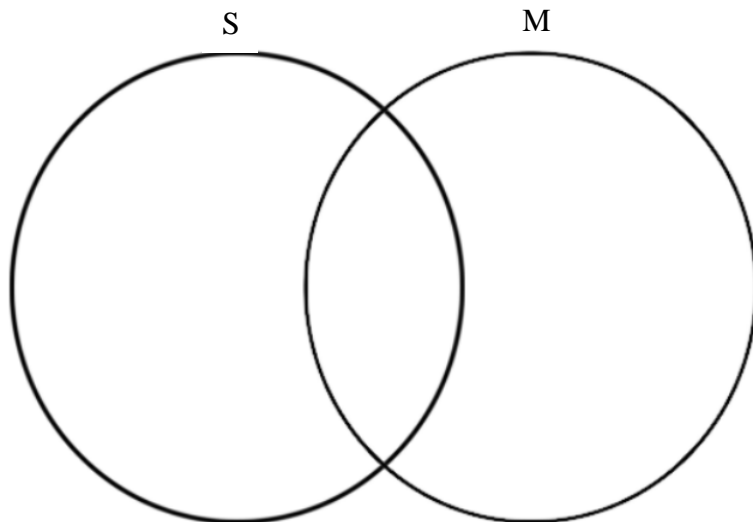
d. What is the probability senior plays video games and sports?

e. What is the probability a student is a junior and plays sports?

f. What is the probability a student who plays video games is a senior?

g. Are the events being a junior and playing video games independent? Use conditional probabilities to justify your answer.

14. Some students like sports and some students like math. The probability a student likes sports is 0.76. The probability a student likes math is 0.16. The probability likes math but not sports is 0.08. Fill in the Venn diagram below.



A student is selected at random. Determine the following probabilities.

a. What is the probability a student likes sports but not math?

b. What is the probability a student likes math and sports?

c. What is the probability a student likes math or sports?

d. What is the probability a student likes neither math nor sports?

e. Are the events liking math and liking sports independent?

15. In studying ocean conditions, the Bureau of Fisheries found that for one location, the August water temperatures (in degrees Fahrenheit) were normally distributed with a mean of  $83^\circ$  and a standard deviation of  $2^\circ$ .

a. What is the probability that the water temperature is higher than  $87^\circ$ ?

b. What is the probability that the water temperature is between  $81^\circ$  and  $85^\circ$ ?

c. What is the probability that the water temperature is lower than  $85^\circ$ ?

d. The water temperature on August 21 was higher than 99.85% of all other temperatures. What was the water temperature on August 21?

16. Nick scored a 90 on his Calculus Exam. Nick also takes Statistics and also scored a 90 on his Statistics test. The mean for Nick's Calculus class was 85 with a standard deviation of 4 and the mean for Nick's Statistics class was 82 with a standard deviation of 8. On which test did Nick perform better on? Use mathematics to explain your decision.

17. Suppose that you and your friend flip a coin 20 times and you calculate the proportion of tails to be .8. Your partner seems surprised at these results and suspects that the coin is not fair.

a. What is meant by a fair coin?

b. Why should you not just use the sample proportion  $\hat{p} = .8$  to decide if the coin is fair or not?

c. Compute the margin of error using the formula:  $2\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$

d. Using both the sample proportion and the margin of error to write a statement as to whether or not you believe the coin is fair.

**\*Keep in mind that you are required to take the AP exam on  
Friday, May 15, 2020 ☺**