

## AP Statistics Summer Packet

Do your best to work through this packet and answer all of the questions. Show your work on everything and show some sort of attempt on every question. This will be due completed on the first day of school when you return. Remember, you are in an AP class so show an AP student amount of effort. Mark any questions you need help on when you get back. Work hard to find answers to the ones you struggle on yourself since there will not be very much time for questions. Feel free (and encouraged) to email Mr. Allen ([ballen@saa-sds.org](mailto:ballen@saa-sds.org)) or Mr. Burkett ([rburkett@saa-sds.org](mailto:rburkett@saa-sds.org)) with any questions.

1. In your book STATS: Modeling the World turn to page 8 and work through the green box "TI Tips: WORKING WITH DATA" This is all done in the calculator with know work to show in class. But you wanna be familiar with this skill so DO IT.

2. Read through the following review of Mean, Median and Mode:

<http://www.purplemath.com/modules/meanmode.htm>

(a) Find the Mean, Median and Mode of the following data:

80, 80, 80, 83, 88, 76, 72, 72, 72, 72, 64, 81.

(b) Find the Mean, Median and Mode of a data set that has three copies of "18", So, 18, 18, 18... and twenty copies 21 and a hundred copies of 23. Explain how you can do this without writing it all out.

3.

Read through the following summary of Quantitative and Categorical data:

<http://www.dummies.com/education/math/statistics/how-to-distinguish-quantitative-and-categorical-variables/>

(a) Determine if the variables listed below are quantitative (Q) or categorical (C).

Time it takes to get to school

Number of people under 18 living in a household

Hair color

Temperature of a cup of coffee

Teacher salaries

Gender

Smoking

Height

Amount of oil spilled

Age of Oscar winners

Type of Depression medication

Jellybean flavors

Country of origin

Type of meat

4.

Watch the following video and then answer the questions below: <https://www.youtube.com/watch?v=YgvdxkP7aCo>

In 1997 there were 92,353 deaths from accidents in the United States. Among these were 42,340 deaths from motor vehicle accidents, 11,858 from falls, 10,163 from poisoning, 4051 from drowning, and 3601 from fires. The rest were listed as “other” causes.

(a) Find the percent of accidental deaths from each of these causes, rounded to the nearest percent.

(b) What percent of accidental deaths were from “other” causes? Show how you determined your answer.

(c) NEATLY create a well-labeled **bar graph** of the distribution of causes of accidental deaths. Be sure to include an “other causes” bar.

(d) NEATLY create a well-labeled pie chart of the distribution of causes of accidental deaths. Be sure to include an “other causes” bar. Be sure the pie “wedges” are proportionally sized to each category.

5.

Review Combinatorics and Probability at the following site as needed:

<http://www.intmath.com/counting-probability/counting-probability-intro.php>

There are many other good tutorial sites as well. You don't have to use this one.

1. If there are 3 appetizers, 3 entrees, and 2 desserts available, how many different three course meals are possible?
2. Suppose three fair coins are tossed, and each time, they turn up heads. What is the probability that the next toss will be heads?
3. How many ways are there to arrange the first five letters of the alphabet(no repetition of characters)?

4. How many 4 digit PINs(personal identification numbers) are possible if repetition of digits is allowed?
5. There are three slots available per day for oral presentations in a hypothetical class. If there are 25 students in the class, how many ways can the presentations be arranged on the first day?
6. For two standard 6 sided dice,
  - (a) What is the probability of rolling two sixes?
  - (b) Of not rolling two sixes?
  - (c) Of rolling a sum of three?
7. Two cards are drawn from a standard 52 card deck. What is the probability that they're both aces?
8. Police report that 78% of drivers stopped on suspicion of drunk driving are given a breath test, 36% a blood test, and 22% both tests.
  - (a) Draw a Venn diagram of this information in the box at the right. Label each area clearly with the variable and the probability.
  - (b) What is the probability that a randomly selected DUI suspect is given a test?
  - (c) A blood test or a breath test, but not both?
  - (d) Neither test?
  - (e) A blood test?
  - (f) A blood test, if a breath test was already given at the scene?

(g) Based on your answers to (e) and (f), do you think that receiving a breath test and a blood test are independent? That is, does having a breath test appear to be related to the likelihood that you receive a blood test? Explain your reasoning.

\*you may not know this, so use your best judgement

9. Evaluate the following using your calculator:

(a)  ${}_8P_4$

(b)  ${}_{17}C_{13}$

10. A test consists of twelve true/false questions. A student who forgot to study guesses randomly on every question. What is the probability that the student answers exactly seven questions correctly?