

Summer Homework for AP Statistics

(Due the 1st day of school)

The purpose of this summer homework is to reach a certain level of familiarity with your graphing calculator. You will have access to your calculator on ALL assignments, tests, and projects this year. It will be your side-kick on your AP Statistics journey and you'll use it nearly every day.



1) **Make a plan for getting an appropriate calculator:** If you do not already own a graphing calculator, my recommendation is to purchase a TI-84 Plus calculator over the summer. If you already have a TI-83 calculator, it will be sufficient 95% of the time. You will be able to use a classroom calculator for the few times that you'll need a TI-84+. If you cannot afford to buy a calculator of your own, talk to your teacher on the first day of school so you can borrow one from the school.

2) **Now learn how to use your calculator:** When you show up on the first day of school (or the second day of school if you need to check one out), I will expect that you will know how to do the following skills. **Consult your manual or a YouTube video if you need to.**

- Enter data into L1, L2, etc.
- Calculate simple statistics such as the mean, median, quartiles, and linear regression equation
- Plot boxplots, scatterplots, and histograms

By the time you finish this summer homework, you should be familiar with all these skills.

A) **Learn how to use the STAT Button:** Enter the following data into List 1

- i. Select the STAT menu.
- ii. Choose "Edit".
- iii. Enter the following data:

510	510	510	543	454	438	459	459
498	466	448	403	498	466	498	433
454	454	498	419	415	454	407	498
443	448	498	433	459	459	419	468

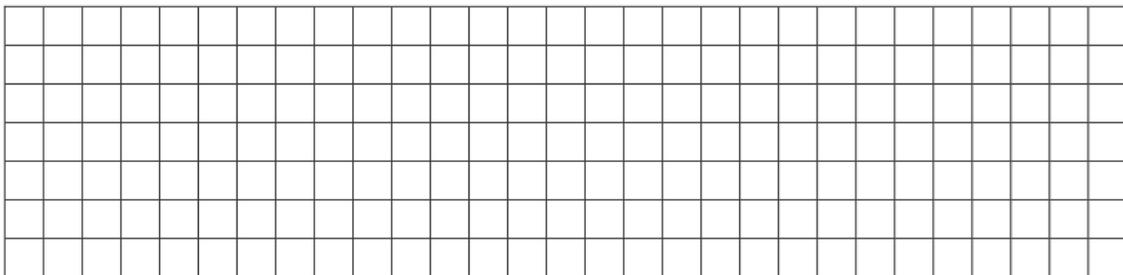
- iv. Do $STAT \Rightarrow CALC \Rightarrow 1\text{-Var Stats} \Rightarrow L1$
- v. Record the following:

Mean _____	Quartile 1 _____
Standard Deviation(s) _____	Median _____
n _____	Quartile 3 _____
Minimum _____	Maximum _____

B) **Learn how to use STAT PLOT:**

i. Select STAT PLOT (2nd Y=). Hit Enter to select Plot 1. Toggle cursor to "On" by hitting Enter. Select the fourth plot (a box plot with outliers) by hitting Enter. Your data should be in List 1, so "Xlist" should read "L1". Frequency should be "1" and you can choose whichever mark you like. Select "Zoom" (3rd button, top row). Choose option 9 (ZoomStat).

ii. Reproduce the box plot *in scale* here. Use "trace" to find the end of the whiskers, the ends of the box, and the middle line of the box. Label your axis and scale. Choose a scale appropriate for the space provided.

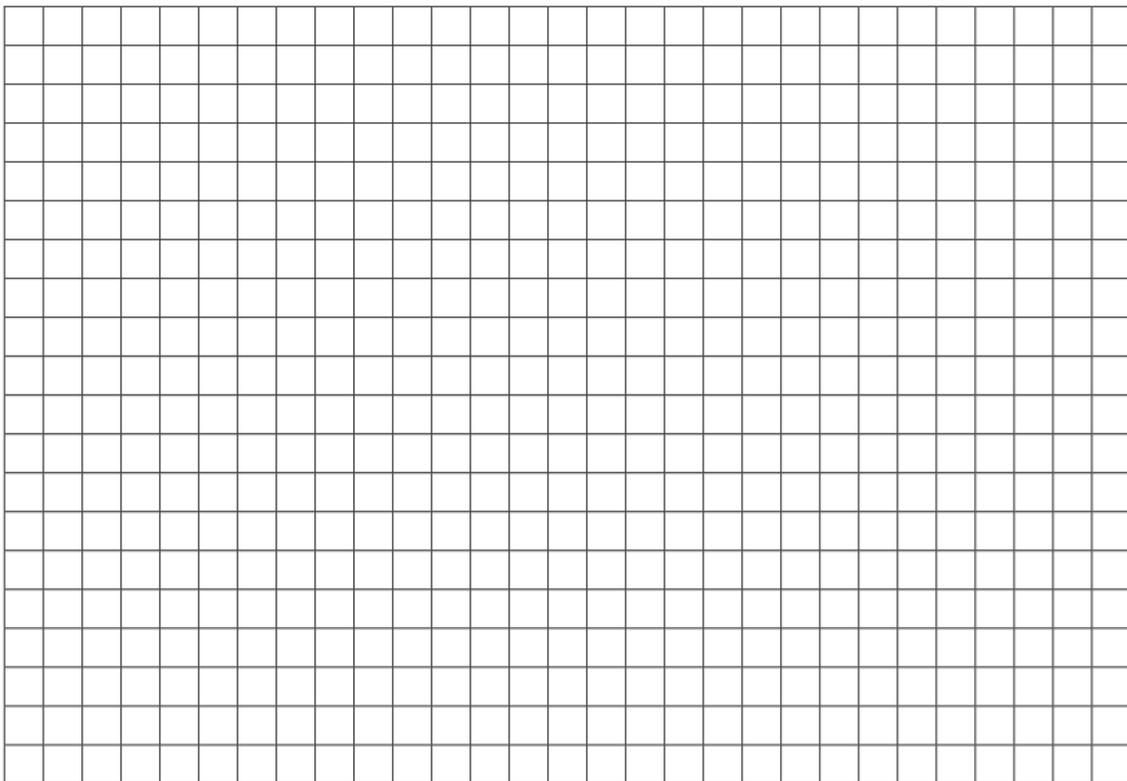


C) **Practice with Linear Regression:** If you are camping in the woods, can you tell what the temperature is by how quickly the crickets chirp?

i. Enter the data below into L2 and L3:

Temperature ($^{\circ}\text{C}$)	Chirps/min
18	110
19	110
20	130
21	135
23	154
24	158
26	179
29	201
31	210
32	230

ii. Plot a scatter plot (the first choice in the plots, under STAT PLOT). Reproduce the scatter plot below with labeled axes, scale, and a title. Choose a scale appropriate for the space provided. Remember to change Xlist and Ylist to L2 and L3!



iii. Now find the line of best fit using the commands:

$STAT \Rightarrow CALC \Rightarrow 8:LinReg(a+bx) \Rightarrow L2, L3$

Record the equation of the line _____

and r _____ and r^2 _____

(turn Diagnostics On if your calculator doesn't show r and r^2)

iv. At 27° , what would you expect the number of chirps/minute to be (don't forget context and units)?