Name:

Period:

Dear AP Statistics Students for the year 2018 and 2019

Welcome to AP Statistics. I am looking forward to a fun year of exploring and learning statistics with you. AP Statistics is unlike any math class you have taken previously. Statistics is not only included in mathematics but is also found in science. Statistics is the science of collecting and analyzing data. Statistics does not rely on calculations and there is sometimes uncertainty in your solutions. Statistics will never prove anything. Statistics will show evidence to support or refute a claim. Statistics requires you to think about the scenario introduced in a problem, devise a solution and interpret your solution in context of the problem in complete sentences. Most calculations will be completed with your calculator. Statistics has direct application in any discipline where data and numbers matter. It is important to have excellent algebra skills, number sense and organizational skills. To be successfully in statistics, you will need to read your textbook every night along with completing the assigned homework. Staying current with your assignments will be crucial! We will use a TI-83/TI-84 graphing calculator in class every day. You will also need a 3-inch or 4-inch 3-ring binder to organize all your statistics work.

Attached is your summer assignment. The purpose of this assignment is to familiarize you with the statistical commands in your calculator. Calculator fluency will contribute to your success in AP Statistics. If you have any questions over the summer, please feel free to email me at kmerlihan@orangeusd.org You may also contact me via my Google voice number which is 951-821-6044. You may text this number if you have any questions on your summer assignment. Your summer assignment is due the first day of school and is your first test grade.

This document can be accessed by going to **http://tinyurl.com/MerliStat2018.** The first page of the summer assignment contains links to YouTube videos to acquaint you with your calculator. Accessing this document online will provide you will an easier access to the links to the videos.

Remember to contact me over the summer with any questions! Do not wait until the last minute to complete this assignment.

Enjoy your time off this summer.

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AP Statistics Name: _____

Summer Assignment Period: _____ Date: _____ Score: _____/100

Assignment is due the first day of class!!!

This will count as the first test grade of the year!

Required for class and homework every day:

- Calculator: any from the TI-83 or TI-84 family
- Binder to organize assignments
- Folder
- Pen and pencils

I. Background Information

Visit the American Statistical Association – http://www.amstat.org/careers

On the left side of the page, search under each of the following four subtopics.

1) What is Statistics?
2) What Do Statisticians Do?
3) How Do I Become a Statistician?
4) What Industries Employ Statisticians?

Statistical Calculator Video Tutorials. Please watch the following videos and practice along with your calculator!

1. Using the Stat editor to enter data
http://www.youtube.com/watch?v=UHpGzGGalx0

2. Entering a data list, and calculating one variable statistics
http://www.youtube.com/watch?v=F9GxGW8gchw

3. Plotting a histogram
http://www.youtube.com/watch?v=_SM6JegQmig

4. Making a box plot
http://www.youtube.com/watch?v=A85vmvnlQ1w

5. Creating a normal probability plot
http://www.youtube.com/watch?v=cZjKdm4TzDo

6. Creating a scatter plot
http://www.youtube.com/watch?v=yNuq-xX8PEI

Another useful link to use during the school year is http://www.stattrek.com/

You may have a quiz on calculator usage and/or American Statistical Association during the first week of school. Practice!

Please note the calculator directions given are for a TI-83 or TI-84. You are required to show work for all questions unless you are specifically instructed to use the calculator.

Before beginning the tasks assigned below, perform the following operations in your calculator.

1. Select *CATALOG (2nd, 0).*
2. Press the letter D. (Use the x^{-1} key. There is an "A" in the upper right corner of your screen signifying you will be selecting the green "ALPHA" function of the key. That selection will allow you to jump to the D's in the catalog, rather than having to scroll through A, B, and C to get there.)
3. Scroll down (use the down arrow key) to find *"DiagnosticOn."*
4. Hit enter button to select it. Then press the enter button again to actually perform the function.

Your calculator will now display information that you will need to access. If you clear the memory on your calculator at any point, you'll need to repeat this process. Always begin a procedure in the calculator from a blank "home screen." (The "regular" screen where you can perform arithmetic operations.)

II. Stat Button use:

Always clear lists in your calculator before entering any form of new data. (Select STAT:ClrList L_1, L_2)

1. Select the STAT menu.
2. Choose "Edit." 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

Double-check the number of values you entered as well as the values themselves!

3. *Sequence of commands*: Stat, Calc, 1-Var-Stats, L1

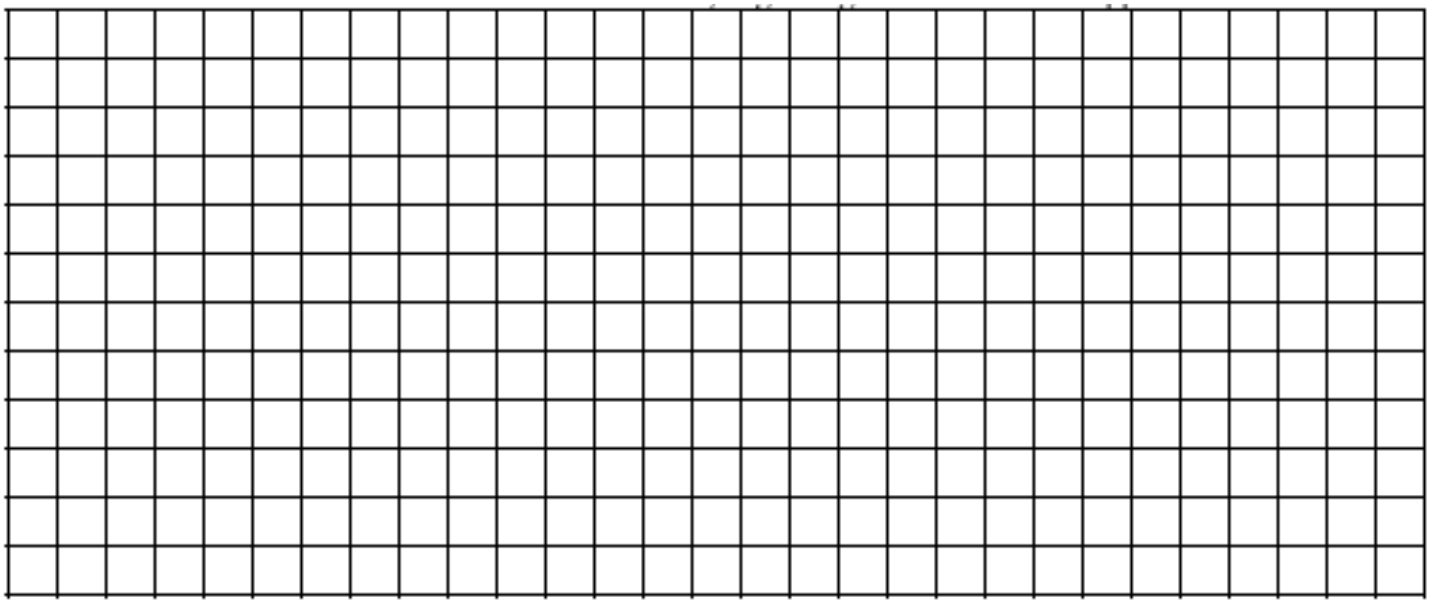
Record the following (Refer to the manual to see which symbol is which statistic)

Statistics Term	***Definition or Meaning***	***Value***
Mean		
Standard deviation		
n		
min		
Q_1		
median		
Q_3		
max		

III. Using the Statistics Plot:

1. Select ***Stat Plot*** (2nd Y=).
2. Hit Enter to select Plot 1.
3. Toggle cursor to "On," by hitting Enter.
4. Select the fourth plot (a box plot with outliers) by hitting Enter.
5. Your data should be in List 1, so x-list should read "L1."
6. Select *"Zoom*" (3rd button, top row).
7. Choose option 9 (*ZoomStat*).

Reproduce the box plot in scale on the graph below. Use trace to find the end of the whisker and the ends of the box and the middle line on the box. Label and use a scale of fives, beginning at 400. Label all approximated values.



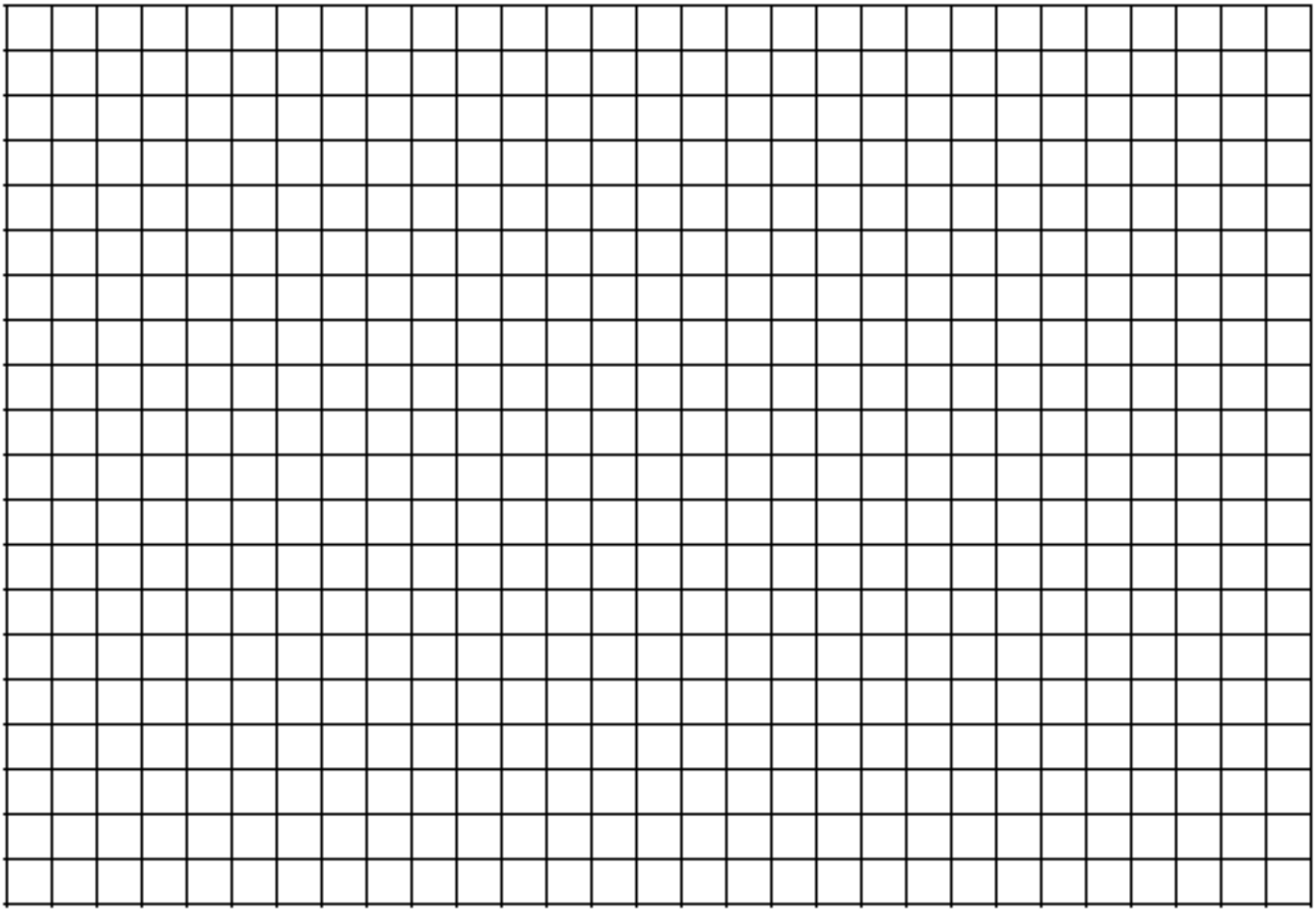
IV. Practice with regression:

If you are camping in the woods, can you tell what the temperature is if you know how fast a cricket chirps? Be sure to use chirps/minute as x and temperature as y.

Chirps/Min	Temperature (C)
110	18
110	19
130	20
135	21
154	23
158	24
179	26
201	29
210	31
230	32

Enter this data into L2 and L3. Plot the scatterplot (*the first choice in the plots, 2nd Y= again*). Reproduce the scatterplot with scale and titled axes. Use a scale appropriate for the space provided. Indicate any breaks in your scale. Breaks may occur only at the beginning of an axis.

Remember to change the x-and y-lists to L2 and L3!



Now find the line of best fit using these commands: Stat-Calc-8-L2, L3.
Record the equation of the line along with r and r^2:

If there were 190 chirps per minute, what would you predict the temperature to be? *(Don't forget to show your work and give units.)*

V. Algebra I & II Review

Show work for **ALL** problems *on a separate sheet. Give answers on this page in exact form only. Simplify all answers.* ***Do not approximate or round.***

1. Solve for the variable.

a) $4(x-2) = 3^2 - x$

_____

b) $\frac{1}{3}n + 3 = n - 2$

_____

c) $9(2p+1) - 3p > 4p - 6$

_____

d) $\frac{2}{3}y = \frac{8}{27}$

_____

e) $.23 = \sqrt{\frac{(.34)(.67)}{x}}$

_____

f) $\frac{m}{12} + \frac{5}{6} = \frac{5}{24}$

_____

g) $\frac{1}{2}x^2 - 8 = 0$

_____

h) $-3x^2 + 343 = 0$

_____

i) $x^2 - 8x + 7 = 0$

_____

j) $2\sqrt{x} + 9 = 21$

_____

k) $\sqrt{2x+10} = x + 1$

_____

l) $\log_3 81 = x$

_____

m) $\log_3 x = 5$

_____

n) $\log_x 256 = 8$

_____

o) $.5 = \frac{10}{\sqrt{x}}$

_____

p) $\frac{x-10}{2} = 3$

_____

q) $\frac{x-3.75}{.25} = 7.5$

_____

r) $4^{3x} = 8^{x+1}$

_____

2. Write equations of the horizontal and vertical lines that pass through the point (-3, 4). Please label which equation is horizontal and which is vertical.

_____ _____

3. Find the slope and y-intercept of the line.

a) $y = \frac{2}{3}(2x-4)$

m = _____

b = _____

b) $3x + 2y = 14$

m = _____

b = _____

c) $\frac{1}{3}y - 6x = 4$

m = _____

b = _____

4. Find the slope and write the equation in slope-intercept form of the line containing the given points.

a) (6, -2) and (0, 5)

m = _____

_____

b) (8, -5) and (3, 4)

m = _____

_____

5. On graph paper, plot the data given. Describe the data as *linear, exponential, quadratic or absolute value*.

a. (-3, 4) (-2, 3 ½) (-1, 3) (0, 2 ½) (1, 2) (2, 1 ½) (3, 1) _____

b. (-3, 4) (-2, 3) (-1, 2) (0, 1) (1, 2) (2, 3) (3, 4) _____

c. (-3, 4) (-2, 2) (-1, 1) (0, ½) (1, ¼) (2, 1/8) (3, 1/16) _____

d. (-3, 4) (-2, 7/3) (-1, 4/3) (0, 1) (1, 4/3) (2, 7/3) (3, 4) _____

6. For each function, find $f(x)$ for $x = -3, 0 \text{ and } 2$.

a. $f(x) = 4x - 2$

$f(-3)$ = _____

$f(0)$ = _____

$f(2)$ = _____

b. $f(x) = 3x^2$

$f(-3)$ = _____

$f(0)$ = _____

$f(2)$ = _____

7. Evaluate $g(f(-2))$ and $f(g(3))$ for each of the following functions.

a. $f(x) = 3x;\ g(x) = 2x + 3$

$g(f(-2))$ = _____

$f(g(3))$ = _____

b. $f(x) = -x;\ g(x) = x^2 + 5$

$g(f(-2))$ = _____

$f(g(3))$ = _____

VI. First Day of Class: Bring your summer work, your calculator, your binder and your statistics textbook. Handouts will be given out for each chapter which will be kept in your binder.

<u>This summer assignment counts as a test grade.</u> **For each component that is missing a major deduction will occur.**