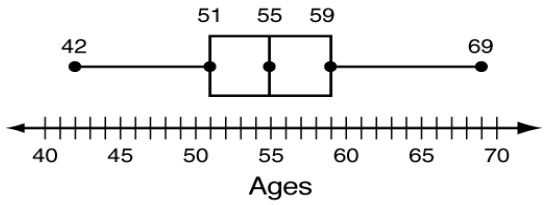
Math Field Day 2016Data Analysis Name _____ School _____

Read each question carefully!!!

1. The ages of the U.S. Presidents that were inaugurated during the 1900s are given below.

Ages at Inauguration
42 51 56 55 51 54 51 60 62
43 55 56 61 52 69 64 46



i. Look at the box-and-whisker plot of these data above. What is wrong with this box-and-whisker plot? _____.

For these data, $\sum_{i=1}^{17} x_i = 928$.

ii. Find the mean:_____ (round to 1 decimal place), median:_____, and mode:_____.

iii. Find the interquartile range: _____.

2. Suppose that an insurance company has broken down yearly automobile claims for drivers from age 16 through 21 as shown in the following table. Let X be the random variable of the amount of claim.

x	P(X=x)
$0	0.8
$2,000	0.1
$4,000	0.05
$6,000	0.03
$8,000	0.01
$10,000	0.01

i. Find $P(\$0 \leq X \leq \$6{,}000)$. _____.

ii. Find the expected value of X. _____.

3. It is reported that 72% of working women use computers at work. Choose 5 working women at random. Round the final answers to 3 decimal places.

i. Find the probability that all 5 use a computer in their jobs._____.

ii. Find the probability that at least 1 doesn't use a computer at work._____.

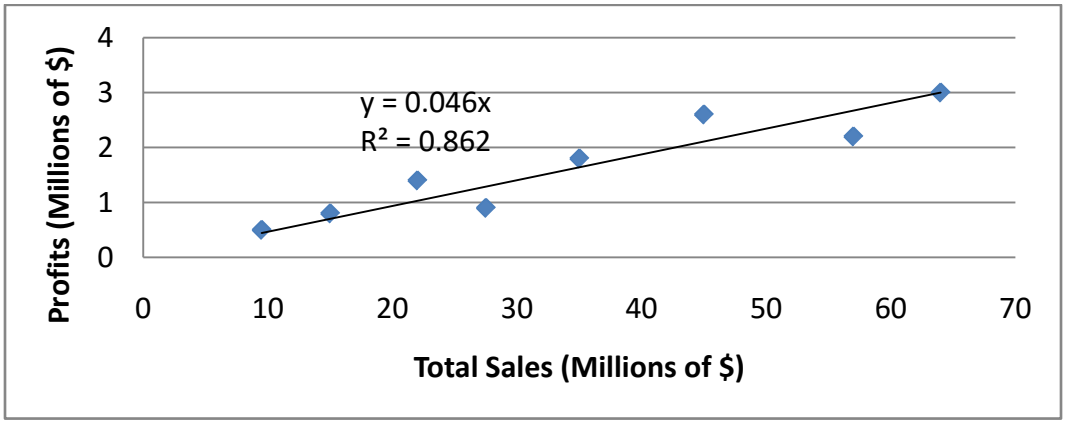
4. In 1979 the English scientist Henry Cavendish measured the density of the earth by careful work with a torsion balance. The variable recorded was the density of the earth as a multiple of the density of water. Here are Cavendish's 16 measurements: (Leave all intermediate calculations and final answers to 2 decimal places)

5.07	5.10	5.26	5.27	5.29	5.29	5.30	5.34	5.34	5.36	5.39	5.42	5.44	5.46	5.68	5.73

(a) Compute the 5-number summary.

(b) Use the 1.5 IQR to detect whether potential outliers exist.

5. The following scatter diagram shows the relationship between total sales (revenue) and profits for 8 retailers.



i. What is the correlation coefficient (leave your answer to 3 decimal place):

ii. Using the least-squares regression line of Profits on Total Sales, predict Profits when Total Sales is $48,000,000.00.

6. The average credit card debt for college seniors is $3262. If the debt is normally distributed with a standard deviation of $1100, find the probability that the college senior owes between $3000 and $4000. (Leave your answer to 3 decimal places)