Statistics Test 90

1) Find the mean and standard deviation of the following set of numbers to two decimal places.

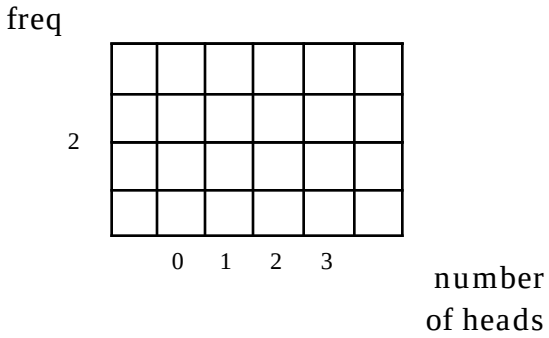
x_i	frequency
110.6	1
110.7	1
110.8	2
110.9	4
111.0	5
111.1	3
111.2	2
111.3	1

2) What does the standard deviation of a set of data tell you about that data? Use your own words.

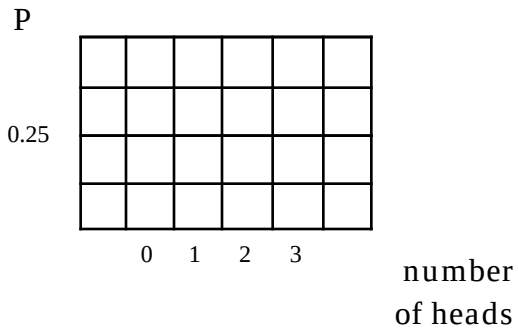
3) Three coins are tossed eight times. The following results were observed.

# heads	frequency
0	0
1	3
2	4
3	1

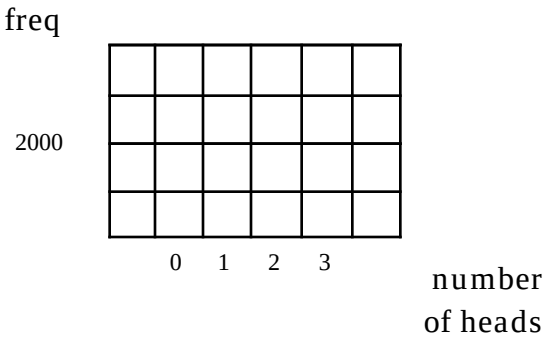
a) Sketch the frequency distribution below.



b) Sketch the probability distribution. It is a binomial distribution.



c) Sketch the frequency distribution which you would expect if the three coins were tossed 8000 times.



4) In a small town, it is known that the adults listen to the radio for a mean of 14 hours per week with a standard deviation of 1.5 hours. The distribution is normal.

Give the percentages for:

a) The people who listen between 12.5 and 15.5 hours per week.

b) The people who listen more than 11 hours per week.

c) The people who listen less than 14 hours per week.

5) A die is rolled 1,200 times.

a) Find the mean number of fives that are rolled.

b) Find the standard deviation for the number of fives rolled.

6) Answer the following questions for the Standard Normal Distribution.

a) The mean is _____ .

b) The standard deviation is _____ .

c) The total area under the curve is _____ .

d) The area under the curve between -0.5 and 1.2 is _____ .

e) A shipment of apples has a mean diameter of 15 cm with a standard deviation of 1.6 cm. Assume that the diameters are distributed normally. What percentage of the apples have a diameter greater than 13 cm?

7) Jane wrote a math test and received a mark of 61%. The average was 68 with a standard deviation of 6.

Joe wrote a different math test in another class and received a mark of 62%. The average was 70 with a standard deviation of 7.

a) What was Jane's z-score? _____

b) What was Joe's z-score? _____

c) Who got the better mark? _____

8) Suppose that a coin is flipped 20 times. Use the normal approximation to the binomial distribution to answer the following questions.

a) Find the mean number of heads tossed.

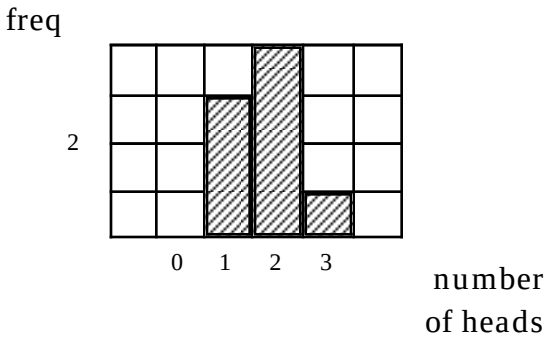
b) Find the probability of tossing 12 or more heads.

9) A sample of data contains 12 data points from a population. The sample has a mean of 54 and a standard deviation of 4.2.

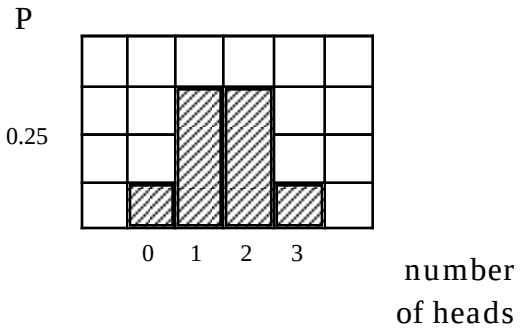
a) Find the 68% confidence interval for the true mean.

b) Find the 95% confidence interval for the true mean.

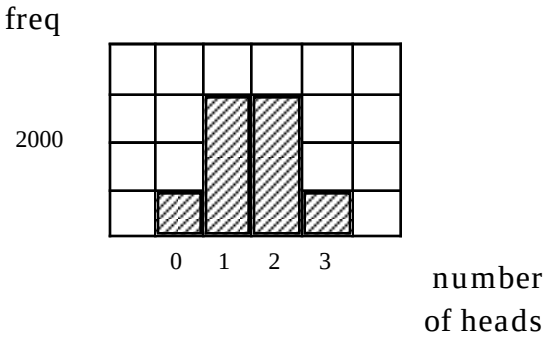
Answers: 1) mean = 110.97, S.D. = 0.17, 2) It tells you how that data is distributed about the mean., 3)a)



b)



c)



4)a) 68, b) 97.5, c) 50, 5)a) 200, b) 12.9, 6)a) 0, b) 1, c) 1, d) 0.5764, e) 89.4, 7)a) -1.17, b) -1.14, c) Joe. He is closer to the mean., 8)a) 10, b) 0.25, 9)a) $52.8 < \mu < 55.2$, b) $51.6 < \mu < 56.4$.