

Question

1 2 3 4 5 6 7 8 9 10 11






**Instructions**

Here are some review questions from Sections 4.1, 4.2, 4.3, and 4.4... Please work some example problems and bring suggestions to class as to which problems you would like to see on the exam. I would like to include 1 question from each section, except possibly 4.1, and perhaps 2-3 questions from section 4.4. This is a total of 5 questions on the exam. Again, if you have any questions, please email me:  
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To study the eating habits of students at a local college, thirty randomly selected students were surveyed to determine the number of times they had purchased food at the school cafeteria during the last week. The following results were obtained.

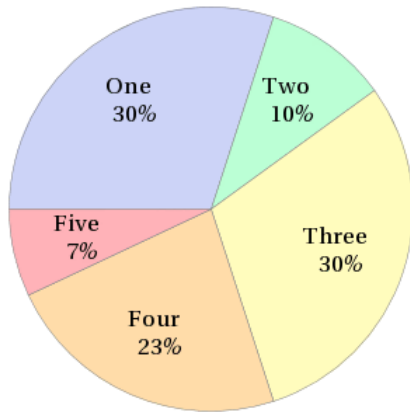
5 4 3 3 3 3 3 1 5 3  
 2 3 3 2 1 2 2 3 2 2  
 1 1 1 2 2 1 2 5 1 4

(a) Organize the given data by creating a frequency distribution.

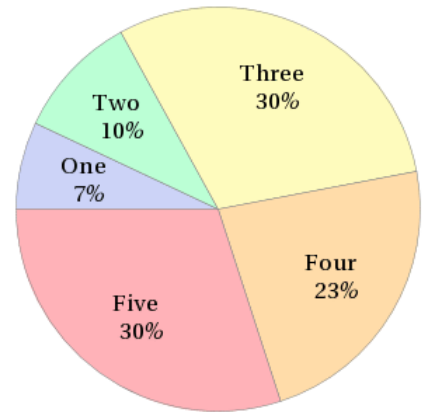
Number of Times Purchased Food	Frequency
1	<input type="text"/>  7
2	<input type="text"/>  9
3	<input type="text"/>  9
4	<input type="text"/>  2
5	<input type="text"/>  3

(b) Construct a pie chart to represent the data.

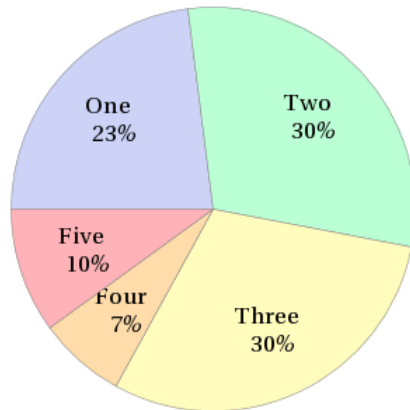
Number of Times Purchasing Food at Cafeteria



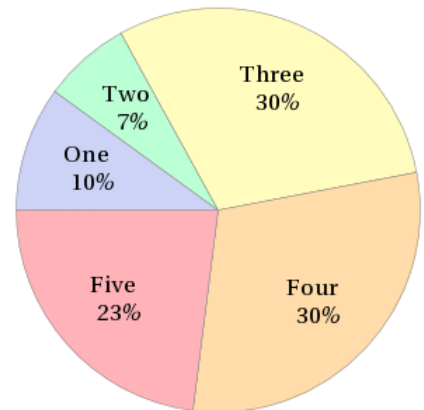
Number of Times Purchasing Food at Cafeteria



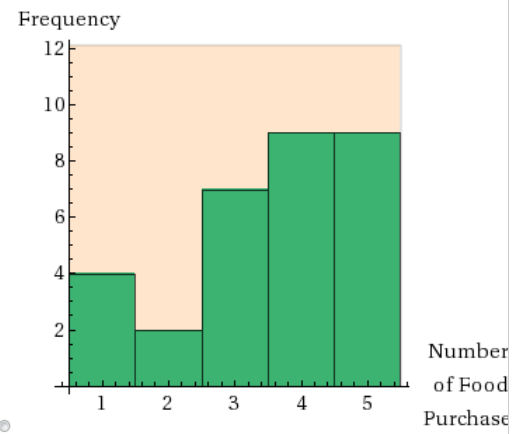
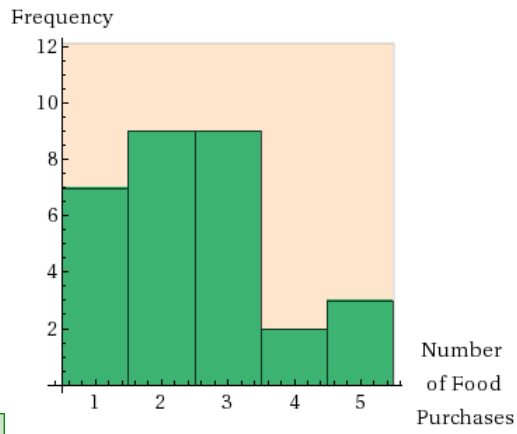
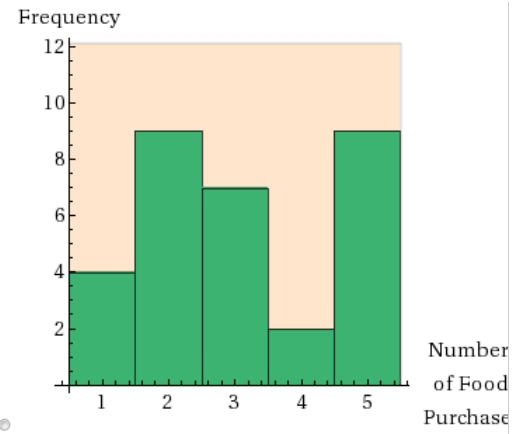
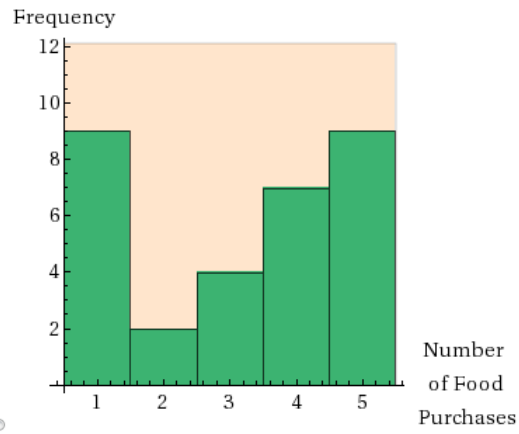
Number of Times Purchasing Food at Cafeteria



Number of Times Purchasing Food at Cafeteria



(c) Construct a histogram using single-valued classes of data.



2. Question Details

JMod7 4.2.003. [1639583]

Find the mean, median, and mode of the given set of raw data. (If more than one mode exists, separate your answers with commas. If an answer does not exist, enter DNE.)

1.2 1.8 0.7 1.5 1.0 0.7 1.9 1.1 1.2

0.8 1.1 1.3 2.3 0.9 2.0 1.1 1.5 2.2

mean  1.35  
 median  1.2  
 mode  1.1

Find the mean, median, and mode of each set of data. (If more than one mode exists, separate your answers with commas. If an answer does not exist, enter DNE.)

(a) 80 90 100 110 110 140

mean  105  
 median  105  
 mode  110

(b) 20 90 100 110 110 200

mean  105  
 median  105  
 mode  110

(c) How do your answers for parts (a) and (b) differ (or agree)? Why?

- The mean and median are affected by the change. The mode stays the same.
- The mode is affected by the change. The mean and median stay the same.
- The mean is affected by the change. The median and mode stay the same.
- The median is affected by the change. The mean and mode stay the same.
- The mean, median and mode all stay the same.

Maria drove from Chicago, Illinois, to Milwaukee, Wisconsin, a distance of ninety miles, at a mean speed of 55 miles per hour. On her return trip, the traffic was much heavier, and her mean speed was 46 miles per hour. Find Maria's mean speed for the round trip.

(*HINT*: Divide the total distance by the total time. Round your answer to one decimal place.)

50.1 mph

Perform each task, given the following sample data. (Round your answers to one decimal place.)

3 8 5 3 10 13

(a) Use the Sample Variance Definition to find the variance and standard deviation of the data.



variance  16.4  
 standard deviation  4.0

(b) Use the Alternative Formula for Sample Variance to find the variance and standard deviation of the data.



variance  16.4  
 standard deviation  4.0

Find the mean and sample standard deviation of each set of data. (Round the standard deviation to two decimal places.)


(a) 4 6 8 10 12 14

mean   9  
 standard deviation   3.74


(b) 104 106 108 110 112 114

mean   109  
 standard deviation   3.74


(c) How are the data in (b) related to the data in (a)?


- The data in (b) are the same as the data in (a).
- The data are not related.
- The data in (a) are 100 more than the data in (b).
-  The data in (b) are 100 more than the data in (a).
- The data in (b) are 100 times the data in (a).


(d) How do your answers for (a) and (b) compare?

- The answers are not related.
-  The mean of the data in (b) is 100 more than the mean of the data in (a). The standard deviations are the same.
- The mean of the data in (a) is 100 more than the mean of the data in (b). The standard deviations are the same.
- Both answers for (a) are the same as the answers for (b).
- The means are the same. The standard deviation of the data in (b) is 100 more than the standard deviation of the data in (a).


What percent of the standard normal  $z$ -distribution lies between the following values? (Round your answers to two decimal places.)


(a)  $z = 0$  and  $z = 1$   
  34.13 %


(b)  $z = -1$  and  $z = 0$   
  34.13 %

(c)  $z = -1$  and  $z = 1$  (Note: This interval represents one standard deviation of the mean.)  
  68.27 %


What percent of the standard normal  $z$ -distribution lies between the following values? (Round your answers to two decimal places.)


(a)  $z = 0$  and  $z = 2$   
  47.72 %


(b)  $z = -2$  and  $z = 0$   
  47.72 %

(c)  $z = -2$  and  $z = 2$  (Note: This interval represents two standard deviations of the mean.)  
  95.45 %


What percent of the standard normal  $z$ -distribution lies between the following values? (Round your answers to two decimal places.)


(a)  $z = 0$  and  $z = 1.5$   
  43.32 %


(b)  $z = -1.5$  and  $z = 0$   
  43.32 %


(c)  $z = -1.5$  and  $z = 1.5$  (Note: This interval represents one and one-half standard deviations of the mean.)  
  86.64 %


Find  $c$  such that each of the following is true. (Round your answers to two decimal places.)


(a)  $p(0 < z < c) = 0.1348$   
 $c =$    0.34

(b)  $p(c < z < 0) = 0.4845$   
 $c =$    -2.16

(c)  $p(-c < z < c) = 0.4618$   
 $c =$    0.62


(d)  $p(z > c) = 0.6077$   
 $c =$    -0.27

(e)  $p(z > c) = 0.0506$   
 $c =$    1.64

(f)  $p(z < c) = 0.1004$   
 $c =$    -1.28

The mean weight of a box of cereal filled by a machine is 18.0 ounces, with a standard deviation of 0.5 ounce. If the weights of all the boxes filled by the machine are normally distributed, what percent of the boxes will weigh the following amounts? (Round your answers to two decimal places.)

(a) less than 17.6 ounces  
  21.19 %

(b) between 17.8 and 18.2 ounces  
  31.08 %