

7. (1 pt.) Consider the following stem-and-leaf plot.

```

Stem-and-leaf      N = 25
Leaf Unit = 1.0
 0 3
 0 59
 1 1
 1 5
 2 2
 2 557789
 3 011223334
 3 5689
    
```

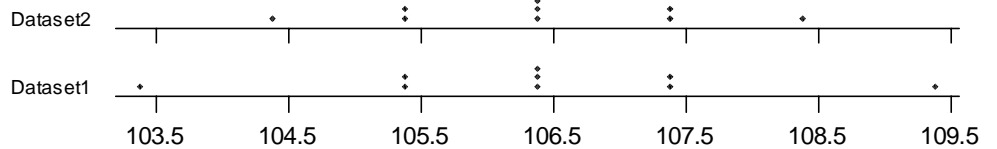
What is the *median* of the distribution? *median* = _____

8. (4 pts.) What is the standard deviation for the data in the table? Show your work in the table.

Data	$y - \bar{y}$	$(y - \bar{y})^2$
10		
20		
15		

standard deviation = _____

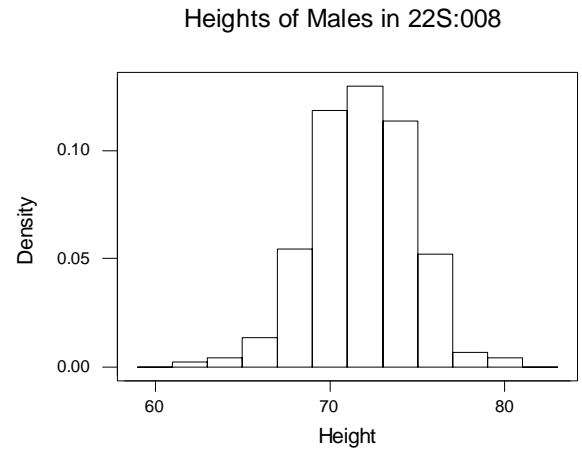
9. Two dotplots are shown at the right.



a) (3 pts.) Which of the two has the larger standard deviation? Explain your answer.

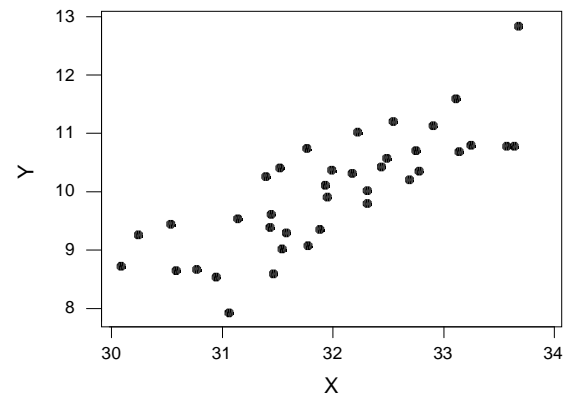
b) (1 pt.) Which of the two has the larger range? Explain your answer.

10. (3 pts.) The density histogram at the right displays the distribution of heights of the 220 males in a class. The mean is 71.3 inches and the standard deviation is 2.7 inches. About **how many** of these guys were 74 inches or taller? (Notice that the distribution is quite mound-shaped.) Explain your reasoning.



11. (1 pt.) Which of the following values is the correlation coefficient in the scatterplot shown at the right?

- A) -0.837
- B) -0.168
- C) $+0.294$
- D) $+0.805$
- E) $+0.998$



12. The two-way table below displays counts for a group of people classified by Gender and Political Party:

	Democrat	Republican	Other
Female	100	40	60
Male	200	60	40

- a) (2 pts.) What percentage of Democrats are male?
- b) (2 pts.) What percentage of the people are Republicans?
- c) (2 pts.) What percentage of the people are female Democrats?

13. (4 pts.) A recent statistics book reported the following study:

Does Use of Marijuana During Pregnancy Affect Birth Weight?

During 1985, approximately 31% of American women in their late teens and early 20s reported that they had used marijuana within the previous year. These are the prime reproductive years for women, and researchers were concerned about the possible effects of marijuana use during pregnancy on fetal growth and development. In the *New England Journal of Medicine*, Zuckerman et al. presented the results of a large-scale study of mothers, recruited over a three-year period from a general prenatal clinic. Among other findings, the researchers reported that the mean birth weight of infants born to 895 mothers who *did not* use marijuana during pregnancy was 3260g, with a standard deviation of 616g. The mean birth weight of infants born to 202 mothers who *did* use marijuana during pregnancy was 2980g, with a standard deviation of 662g.

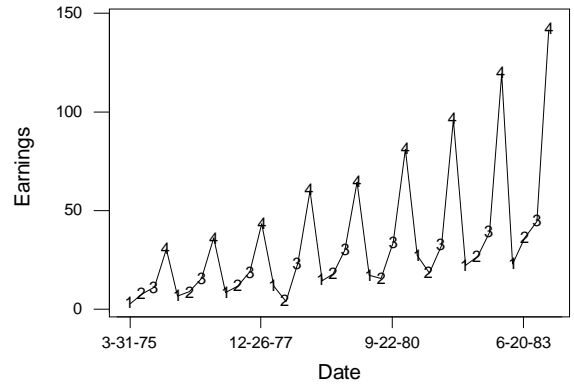
Assume the birth weight distributions are roughly mound-shaped. Compare the birth weight distributions of mothers who did use marijuana during pregnancy with those who did not. Sketch their density histograms using the same scale on the data axis. Be sure to label the data axis carefully. You need not put a scale on the vertical axis. (You may draw smooth curves rather than steps.)

14. (3 pts.) A large company two divisions. Division A has 1000 employees and Division B has 10,000 employees. The CEO wants to compare the gender distributions in the two divisions. What display would be best for this comparison? Explain your choice.

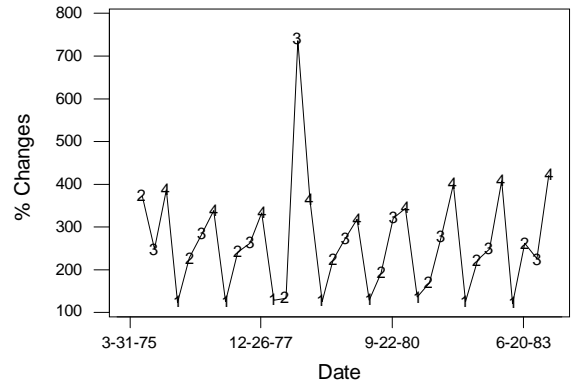
15. (4 pts.) A set of 290 accounts in a Canadian branch of your company has a mean of \$1000 and a standard deviation of \$50. These are given in Canadian dollars. One Canadian dollar is worth only 0.80 US dollars. What would the mean and standard deviation of the 290 accounts be in US dollars? Show your work.

In US dollars: mean = _____ standard deviation = _____

16. The graph at the right shows quarterly earnings for the Dayton-Hudson company over several years. Dayton-Hudson owns retail department stores including Target. (There are four values per year. The fourth quarter includes Christmas.)



b) (3 pts.) The graph at the right shows the percentage changes for the Dayton-Hudson quarterly earnings shown in the previous question. Describe this sequence of percentage changes using terms like random, meandering, or seasonal. Describe any unusual features of the graph.



17. (4 pts.) Find the correlation coefficient for the data pairs in the table below. Show your work in the table and label the columns appropriately. The standard deviation of X is 1 and of Y is 2. You may use these standard deviations without having to calculate them. You may not need all of the columns shown.

X	Y							
11	6							
10	4							
12	8							

Do not print anything out. Just produce and interpret displays and calculations on your screen. Keep your eyes on your own screen please! Place all of your answers on this test sheet. To avoid confusion you may want to close Worksheets and graphs when you go from one question to the next.

18. Using Minitab, Open the Worksheet named Icbus.mtw from the 22s:008 datasets. These data give the monthly number of bus riders on the Iowa City bus system for the months September 1971 through December 1982.

- a) (1 pts.) How many data points are in the dataset? _____

- b) (3 pts.) Plot these data in a sequence plot perhaps using different plotting symbols for the various months. Describe the longitudinal nature of the data using terms like random, meandering, and seasonal. (You may want to use % k:\22s-008\macros\monthly)

19. Using Minitab, Open the Worksheet named Def.mtw from the 22s:008 datasets. These data are the Days elapsed from the time a bill is sent until it is paid. Display a frequency histogram of these data.

- a) (2 pts.) Describe the distribution of Days using the terms skewed and symmetric.

- b) (3 pts.) What are the mean, median and standard deviation for Days?

mean = _____

median = _____

standard deviation = _____

20. Using Minitab, Open the Worksheet named Restrnt.mtw from the 22s:008 datasets. These are responses from a survey of several hundred restaurants in Wisconsin. We will concentrate on just two categorical variables: Type and Owner. In the Worksheet Type is coded numerically as 1=fast food, 2=supper club and 3=other. Owner is coded as 1=sole proprietorship, 2=partnership and 3=corporation.

- a) (2 pt.) What percentage of the restaurants are fast food restaurants?

- b) (2 pt.) What percentage of the fast food restaurants are corporate owned?

- c) (2 pt.) What percentage of the corporate owned restaurants are fast food restaurants?

Defective Question Report

Name: _____

Section: _____

If you believe that a test question is defective in some way, please list your complaint here. All complaints will be considered in our interpretation of the test results.

Question number: _____

Your complaint:

Question number: _____

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Question number: _____

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