

Instructions: Answer the following questions on separate numbered page(s) and attach work to this page. Indicate for each problem on this sheet which page the answer to the question can be found, and indicate the answers clearly in your work (you can circle the answer, for instance).

1. Classify the following variables. Check the boxes that apply.

Letters are qualitative

Variable	Categorical/Qualitative	Quantitative	Discrete	Continuous
Test Grade %		✓		✓
Country	✓			
Year		✓	✓	
Volume		✓		✓
Cost		✓		✓
Produce	✓			
Purpose	✓			
Latitude		✓		✓
Rainfall		✓		✓
Gender	✓			
Political Party	✓			
Brand of PC	✓			
Zip Code	✓			
Marital Status	✓			

Can't be averaged

2. Use the data in the table below of the favorite summertime activities of twenty-four 10-year-olds to construct a frequency table, and a relative frequency table.

Ballet	Track	Baseball/Softball	Basketball	Swimming	Ballet
Ballet	Swimming	Basketball	Track	Swimming	Swimming
Cycling	Baseball/Softball	Swimming	Soccer	Soccer	Soccer
Basketball	Swimming	Swimming	Track	Baseball/Softball	Soccer

Build a pie graph of the data relative frequencies. Build a Pareto graph (ordered largest to smallest) bar graph of the frequencies.

3. A small computer firm offers its employees the choice of stock options instead of Christmas bonuses. The following data is the number of shares a sample of forty employees owns:

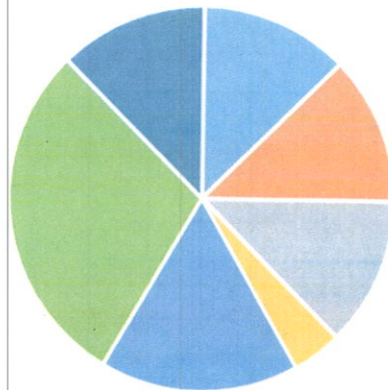
14 24 8 31 27 9 20 32 24 27
 22 21 24 23 12 31 30 31 26 34
 13 18 17 33 34 21 28 23 22 21
 25 20 43 18 15 15 17 29 21 25

- Find the range of the data.
- Let the frequency table contain 8 classes of equal size. Find the class width.
- Make a frequency table for the data dividing it in 8 classes.
- Graph the histogram (be sure to include all appropriate labels for both axes and a clear and descriptive title).

2.

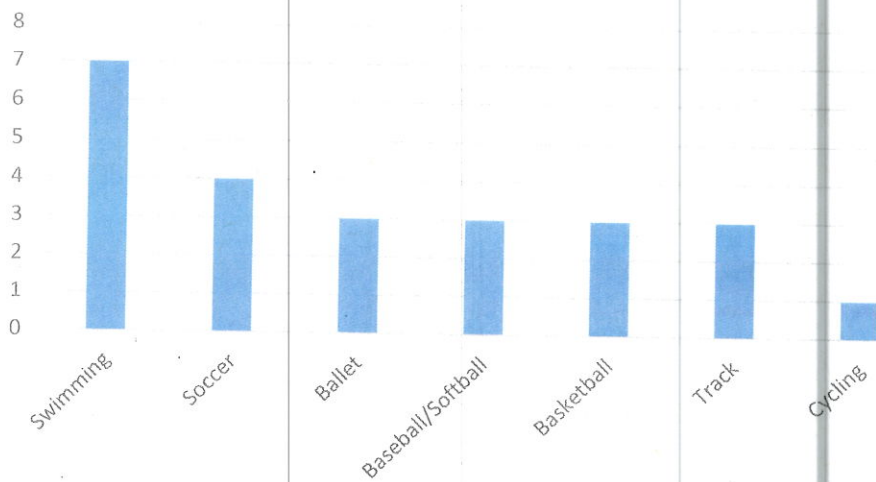
Favourite Sport	Frequency	Relative Frequency
Ballet	3	12.50%
Baseball/Softball	3	12.50%
Basketball	3	12.50%
Cycling	1	4.17%
Soccer	4	16.67%
Swimming	7	29.17%
Track	3	12.50%

Favourite Sports



■ Ballet ■ Baseball/Softball ■ Basketball ■ Cycling ■ Soccer ■ Swimming ■ Track

Favourite Sport



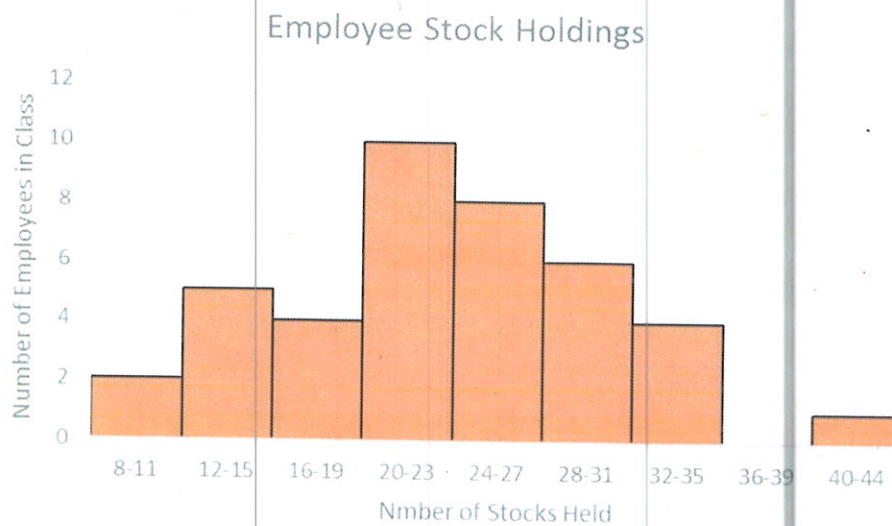
3.

a. Range: $43 - 8 = 31$

b. $\frac{31}{8} = 3.875$ or round to 4

c.

Class	Frequency
8-11	2
12-15	5
16-19	4
20-23	10
24-27	8
28-31	6
32-35	4
36-39	0
40-44	1



4. This chart says that of the sample collected here, more than half were dog owners, a little less than a third were cat owners, and the rest were other types of pets.

Pet Ownership	Relative Frequency	Frequency
Dogs	55%	275
Cats	30%	150
Fish	6%	30
Rabbits	5%	25
Rodents	4%	20

5. a. She did the most sit-ups on Wednesday. B. She did 425 sit-ups that week.

6. a. 31 trees in the sample. B. $10/31$, c. the median tree is #16, which is in class 75-80 since there are 14 trees below it.

7.

Mean 85.5

10. Grades: plotting grades like this is misleading and difficult to read. Higher grades have more area, but are still just one score. We can't see easily which range of grades is the most common. We should use a histogram for this data.

Triangle: triangles are hard to read to begin with, then make 3D and it's even harder. There is no title and no axis labels

Flag: some of the bars appear to start on top of the blue field, making them look taller than they should be. Also, should the bars be measures where the solid part ends, or at the tip of the image on top of the bar?

Economy: axis should start at 0, not 17%