

Math 373 Hw 1 Recommended problems, don't turn this in.

Hw. 15:1.4abc, 1.6abc, 1.8abcd, 1.12abd. 29: 1.16ab, 1.18ad, 1.20a. Rec.15:1.1,1.3,1.5,1.7,1.9a-f,1.11ab. 29: 1.17abc, 1.19, 1.21a.

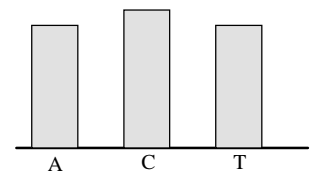
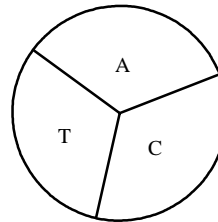
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- 1.1 Identify the experimental units on which the following variables are measured:
- Gender of a student.
 - Number of errors on an exam.
 - Age of a patient.
 - Number of flowers on an azalea plant.
 - Color of a car in a parking lot.
- 1.3 Identify the following quantitative variables as discrete or continuous.
- Population in a particular town.
 - Weight of newspapers in a delivery truck.
 - Time to complete a sociology exam.
 - Number of consumers in a poll of 1000 who consider nutritional labeling important.
- 1.5 You are a candidate for your state legislature, and you want to survey voter attitudes regarding your chances of winning. Identify the population that is of interest to you and from which you would like to select your sample.
- 1.7 An educational researcher wants to evaluate the effectiveness of a new method of teaching reading. Achievement at the end of a period of teaching is measured by a student's score on a reading test.
- What is the variable to be measured? Is this variable quantitative or qualitative?
 - What is the experimental unit?
 - Identify the population of interest to the experimenter.
- 1.9 The jeans in a department store may come from California (C), Arizona (A) or Texas (T). A random sample of 25 jeans is selected and state of origin is recorded. The result is
 C A A T C C C T T T A A C A T
 C A T T T C A A C C
- What is the experimental unit?
 - What is the variable being measured? Is it quantitative or qualitative?
 - Construct a pie chart to describe the data.
 - Construct a bar chart to describe the data.
 - What *proportion* of the jeans come from Texas?
 - What state produced the most jeans?
- 1.17 A discrete variable can take on the values 0, 1, 2. A set of 20 measurements on this variable is as follows:
 1 2 1 0 2 2 1 1 0 0 2 2 1 1 0 0 1 2 1 1
- Construct a relative frequency histogram.
 - What proportion of the measurements are >1 ?
 - What proportion are <2 ?
- 1.19 A psychologist measures the length of time it takes a rat to successfully navigate a maze on each of five days. The times are
- | | | | | | |
|------|----|----|----|----|----|
| day | 1 | 2 | 3 | 4 | 5 |
| time | 45 | 43 | 46 | 32 | 25 |

- Draw a line chart to represent the data.
- Is any learning taking place?

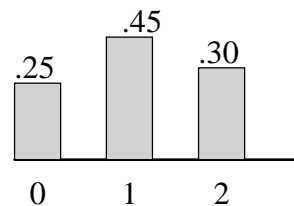
Answers

- 1.1 (a) student (b) exam (c) patient (d) azalea plant (e) car.
- 1.3 (a) discrete (b) continuous (c) continuous (d) discrete.
- 1.5 (a) the set of voter preferences in the state.
- 1.7 (a) a student's score - quantitative (b) the student (c) the set of scores
 Note about (c). *Population*, by definition, is the set of measurements, not the units being measured. Thus the population for this problem is the the set of scores, not the set of students. The students are the experimental units or sample elements.
- 1.9 (a) the jeans (b) state of origin -- qualitative (c) (d)



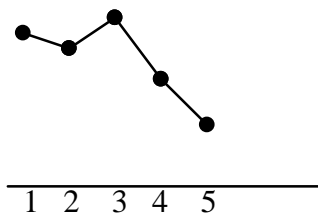
- 8/25
- California

- 1.17 (a)



- $6/20 = 3/10$
- $14/20 = 7/10$

- 1.19 (a)



- No