

PSYC 240: Statistics in Psychology
PRACTICE SET 1: MEASUREMENT AND DESCRIPTION

Purpose: Descriptive statistics form the building blocks of most, if not all, of the analyses we conduct later in the semester. This set of practice problems is designed to give you practice in thinking about and calculating statistics related to measurement and description.

Short Essay Questions: Please provide a typewritten answer to the following essay questions:

1. What features of a distribution can and should be described numerically? Define the 4 main features or characteristics of a distribution, describe how and why a numerical measure is determined for those features, and explain how each measure is interpreted.
2. What is the relationship between frequency and probability? In other words, describe the similarities and differences in the ways frequency and probability are calculated and interpreted.

Problem-Based Questions: Please show all work and clearly identify the final answer for each of the following questions.

1. Suppose that the following frequency distribution represents the number of class periods students in a course attended over the semester (there were 30 class periods over the semester).

		Frequency	Percent	Cumulative Percent
Valid	23.00	1	3.2	3.2
	24.00	1	3.2	6.5
	25.00	2	6.5	12.9
	26.00	3	9.7	22.6
	27.00	4	12.9	35.5
	28.00	7	22.6	58.1
	29.00	9	29.0	87.1
	30.00	4	12.9	100.0
	Total	31	100.0	

- a. Calculate “by hand” the mean and standard deviation for the distribution.
- b. What score is associated with a percentile rank of 35.5? What about 87.1?
- c. Assuming that the distribution was normal, calculate the point/score associated with the 50th and 90th percentiles using z-scores.

2. Assume a normal distribution of scores with a mean of 57 and a standard deviation of 10:
 - a. Find the proportion of the distribution below the following scores:
 - i) 45
 - ii) 63
 - b. Find the proportion of the distribution larger the following scores:
 - i) 59
 - ii) 42
 - c. Find the proportion of the distribution between the following scores:
 - i) 63-80
 - ii) 47-63
 - iii) 47-55
3. Assuming a normal distribution with $M = 100$, $SD = 16$, what are the raw and z scores associated with each of the following?
 - a. An interval that represents the middle 90% of the scores in the distribution?
 - b. An interval that represents the middle 95% of the scores in the distribution?
 - c. An interval that represents the middle 99% of the scores in the distribution?