

# PSYC 2317: Statistical Methods for Psychology

Tarleton State University

Exam 1 Practice Problems

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1. Compute the mean and median for the following set of scores: 5,7,5,4,3,12,9,6,6,5,7,5,6,4
2. A sample of  $N = 6$  scores has a mean of  $\bar{X} = 8$ . If one score with a value of  $X = 3$  is removed from the sample, what is the mean of the remaining set of scores?
3. Compute the variance and standard deviation for the following scores: 1,8,0,4,2
4. For a distribution with  $\mu = 70$  and  $\sigma = 20$ , find the  $z$ -score that corresponds to each of the following  $X$  values: 80, 100, 65, 40.
5. For a distribution with  $\mu = 60$  and  $\sigma = 6$ , find the  $X$ -value that corresponds to each of the following  $z$ -scores: 1.50, -0.50, 2.00,  $-1/3$
6. On a psychology exam with  $\bar{X} = 76$  and  $\sigma = 12$ , Tom scored 8 points below the mean, Mary had a score of 73, and Bill had a  $z$ -score of -0.50. Rank these students in order from lowest to highest score.
7. A distribution of scores with  $\mu_1 = 73$  and  $\sigma_1 = 6$  is standardized to create a new distribution with  $\mu_2 = 50$  and  $\sigma_2 = 10$ . What is the new value for each of the following scores from the original distribution: 67, 70, 79, 82
8. The length of conversations between supervisors and workers in a particular manufacturing industry is normally distributed with a mean of 4.0 minutes and a standard deviation of 0.8 minutes. What percentage of conversations are:
  - (a) longer than 4.4 minutes?
  - (b) Longer than 3 minutes?
  - (c) Shorter than 2.5 minutes?
9. Scores on the SAT form a normal distribution with a mean of  $\mu = 500$  with  $\sigma = 100$ . A certain university only accepts students who score at or above the 60th percentile on the SAT. If someone scores a 600 on the SAT, do they meet the minimum for admission? Explain.
10. Suppose we are taking samples from a normal population with  $\mu = 40$  and  $\sigma = 8$ :
  - (a) What is the probability of obtaining a sample mean less than 37 for a sample of size 16?
  - (b) What is the probability of obtaining a sample mean greater than 37 for a sample of size 16?
  - (c) What is the probability of obtaining a sample mean less than 37 for a sample of size 4?