The sample questions are True/False.

1. Suppose **x** consisted of the following values: {5, 5, 5, 5, 5}. The variance of **x** is zero.

2. The relative frequencies in a relative frequency distribution sum to 1 (100%).

3. It is possible for the calculated variance to equal a negative value.

4. The standard deviation is a more commonly used measure of dispersion than is the variance.

5. The distribution of income is an example of a left-skewed distribution.

6. Consider event A. $P(A \cap \bar{A}) = 100\%$.

7. It is possible for probability to be greater than 100%.

8. Consider events A and B. If $P(A \cap B) = \emptyset$, the two events share no basic outcomes.

9. Suppose you have a fair coin so that if it is flipped, there is a 50% probability of heads, 50% tails. If you flip the coin 10 times, heads will always come up 5 times.

10. Consider events A and B. P($A \cup B$) ≥ P($A \cap B$).

11. In the Z-distribution, P(Z>1) equals P(Z>-1).

12. The normal distribution can be used to represent the distribution of any variable.

13. If ***X*** is defined as individual observations in a population, it is considered to be a variable.

14. In the Z-distribution, $P(Z \geq 0) = 1\ (100\%)$.

15. If we sample in an unbiased manner, we know that our calculated $\bar{x}$ will equal μ.

16. Whether or not $\bar{x}$ is a biased estimate of μ depends on the size of the sample taken to calculate $\bar{x}$.

17. For a specific population, there is only one possible value for $\bar{x}$.

18. The sample proportion, $\hat{p}$, is an estimate of the population proportion, **P**.

19. Holding other factors constant, a 99% confidence interval for μ will be more narrow than a 90% confidence interval.

20. It is possible for two different variables to both be normally distributed yet each have its own mean and variance.

21. For any normal curve, the median of the distribution always equals the mean.

22. We perform hypothesis tests for μ because we don’t know its value.

23. Suppose we perform a hypothesis test and reject $H_0: \mu = \mu_0$. We are concluding that the difference between our test statistic and μ_0 is a result of sampling error.