# PSYC 2317: Statistical Methods for Psychology

Tarleton State University | Homework 3 | Fall 2019

1. Find each of the following probabilities for a standard normal distribution:

   (a) $P(z > 1.25)$

   (b) $P(z > -0.60)$

   (c) $P(z < 0.70)$

   (d) $P(z < -1.30)$

2. What proportion of the standard normal distribution is located between each of the following $z$-score boundaries?

   (a) $z = -0.25$ and $z = +0.25$

   (b) $z = -1.20$ and $z = +1.20$

   (c) $z = +0.20$ and $z = +1.50$

   (d) $z = -0.50$ and $z = +1.00$

3. Find the $z$-score location of the vertical line that separates the standard normal distribution as described in each of the following:

   (a) 5% in the tail on the left

   (b) 30% in the tail on the right

   (c) 65% in the body on the left

   (d) 80% in the body on the right

4. For a normal distribution with a mean of $\mu = 60$ and a standard deviation of $\sigma = 10$, find the proportion of the population corresponding to each of the following:

   (a) Scores greater than 65

   (b) Scores less than 68

   (c) Scores between 50 and 70

5. The distribution of scores on the SAT is approximately normal with a mean of $\mu = 500$ and a standard deviation of $\sigma = 100$. For the population of students who have taken the SAT,

   (a) What proportion have SAT scores less than 400?

   (b) What proportion have SAT scores greater than 650?

   (c) What is the highest minimum SAT score needed to be in the highest 20% of the population?

   (d) If a state college only accepts students from the top 40% of the SAT distribution, what is the minimum SAT score needed to be accepted?