

PSYC 2317: Statistical Methods for Psychology

Tarleton State University

Unit 3 Homework

Spring 2020

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?