

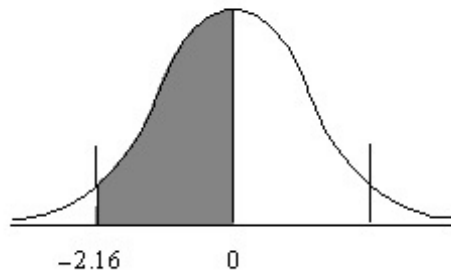
Practice 07

6.1 Normal Distribution

6.2 Applications of the Normal Distribution

6.3 The Central Limit Theorem

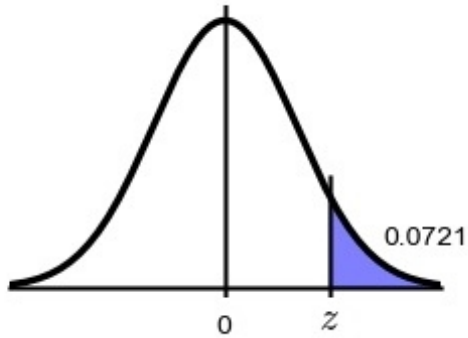
- 1) Find the area under the standard normal distribution curve between $z = 0$ and $z = -2.16$. 1) _____



- A) 0.3708 B) -2.1600 C) 0.9846 D) 0.4846
- 2) Find the area under the standard normal curve to the left of $z = 1.9$. 2) _____
A) 0.4713 B) 0.0287 C) 0.9713 D) 0.4857
- 3) Find the area under the standard normal curve to the right of $z = 2.7$. 3) _____
A) 0.0018 B) 0.0035 C) 0.9965 D) 0.4965
- 4) Find the area under the standard normal curve that lies between $z = -0.8$ and $z = 0.8$. 4) _____
A) 0.2881 B) 0.5763 C) 0.4237 D) 0.7119
- 5) Find the probability $P(-0.67 < z < -0.06)$ using the standard normal distribution. 5) _____
A) 0.2246 B) 0.7754 C) 0.1400 D) 0.3546

6) Find the z value that corresponds to the given area.

6) _____



A) -1.46

B) 0.07

C) 1.46

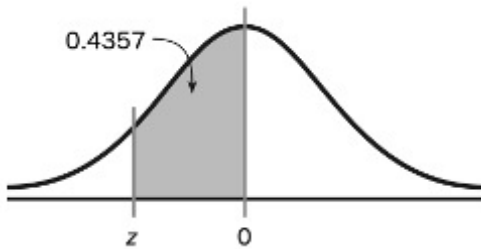
D) 1.23

7) Find the z value to the right of the mean so that 62.93% of the area under the distribution curve lies to the left of it.

7) _____

8) Find the z value that corresponds to the given area.

8) _____



A) -1.52

B) 0.17

C) -0.17

D) 1.52

9) Find two z values, one positive and one negative, that are equidistant from the mean so that the areas in the two tails add to 1%.

9) _____

A) $z = +2.33$ and $z = -2.33$

B) $z = +1.65$ and $z = -1.65$

C) $z = +2.58$ and $z = -2.58$

D) $z = +1.96$ and $z = -1.96$

10) If a normally distributed group of test scores have a mean of 70 and a standard deviation of 12, find the percentage of scores that will fall below 50.

10) _____

A) 6.75%

B) 4.75%

C) 35.54%

D) 45.25%

11) A normal population has a mean $\mu = 31$ and standard deviation $\sigma = 8$. What proportion of the population is less than 29?

11) _____

A) 0.7517

B) 1.0000

C) 0.4013

D) 0.5987

- 12) A normal population has a mean $\mu = 33$ and standard deviation $\sigma = 8$. What is the probability that a randomly chosen value will be greater than 30? 12) _____
A) 0.7486 B) 0.7881 C) 0.3557 D) 0.6443
- 13) A bottler of drinking water fills plastic bottles with a mean volume of 999 milliliters (mL) and standard deviation 7 mL. The fill volumes are normally distributed. What is the probability that a bottle has a volume greater than 992 mL? 13) _____
A) 0.8810 B) 0.8413 C) 0.9987 D) 1.0000
- 14) The average gas mileage of a certain model car is 30.0 miles per gallon. If the gas mileages are normally distributed with a standard deviation of 0.75 miles per gallon, find the probability that a car has a gas mileage of between 29.8 and 30.2 miles per gallon. 14) _____
A) 0.273 B) 0.107 C) 0.287 D) 0.213
- 15) In order to be accepted into a certain top university, applicants must score within the top 5% on the SAT exam. Given that the exam has a mean of 1000 and a standard deviation of 200, what is the lowest possible score a student needs to qualify for acceptance into the university? 15) _____
A) 1400 B) 1250 C) 1100 D) 1330
- 16) A sample of size 95 will be drawn from a population with mean 25 and standard deviation 13. Find the probability that \bar{x} will be between 22 and 27. 16) _____
A) 0.9080 B) 0.9210 C) 0.0122 D) 0.0668
- 17) A sample of size 39 will be drawn from a population with mean 23 and standard deviation 10. Find the probability that \bar{x} will be greater than 25. 17) _____
A) 0.0951 B) 0.1056 C) 0.8944 D) 0.1292
- 18) A sample of size 47 will be drawn from a population with mean 25 and standard deviation 5. Find the probability that \bar{x} will be less than 26. 18) _____
A) 0.0853 B) 0.9147 C) 0.9292 D) 0.8869
- 19) A certain car model has a mean gas mileage of 29 miles per gallon (mpg) with a standard deviation 3 mpg. A pizza delivery company buys 49 of these cars. What is the probability that the average mileage of the fleet is greater than 28.8 mpg? 19) _____
A) 0.7486 B) 0.2514 C) 0.6808 D) 0.6064

Answer Key

Testname: STA2023_PRACTICE07

- 1) D
- 2) C
- 3) B
- 4) B
- 5) A
- 6) C
- 7) 0.33
- 8) A
- 9) C
- 10) B
- 11) C
- 12) D
- 13) B
- 14) D
- 15) D
- 16) B
- 17) B
- 18) B
- 19) C