1) Find the area under the standard normal curve
   a) between -1.58 and 2.13.
   b) right of -1.78

2) Find first quartile, third decile and 95th percentile of the standard normal distribution curve.

3) The test scores of the population of Mat 117 students at ASU are normally distributed with mean \( \mu = 72 \) and standard deviation \( \sigma = 11 \).
   a. What percent of students had scores larger than 85?
   b. What is the probability that a randomly selected student will have a test score \( X \) less than 62?
   c. What is the test score that is the 95th percentile of the distribution of the test scores.

Calculate the following probabilities. (Standard normal distribution)

4) \( P(0 < z < 1.73) \)
5) \( P(z \geq -1.44) \)
6) \( P(-1.23 < z \leq .86) \)
7) \( P(1.23 < z < 1.97) \)
8) \( P(z < -.18) \)
9) \( P(z = 1.96) \)

The mean time that it takes a Burrowing Canary to eat a potato is 28 seconds, with a standard deviation of 3.4 seconds. Assume that the scenario follows a normal distribution. (2 pts each)

10) Find the probability that a randomly selected Burrowing Canary eats a potato in less than 27.5 seconds.
11) If 50 randomly selected Burrowing Canaries each eat a potato, find the probability that the mean time is less than 27.5 seconds.
12) Find the 90th percentile. (That time in which 90% of Burrowing Canaries can eat a potato in less time, but only 10% take more time.)

The mean score on a national test was a 71.9. The standard deviation was 8.41. Assume that the scenario follows a normal distribution. (2 pts each)

13) If 100 test scores were selected at random, find the probability that the mean score was greater than a 70.
14) Calculate the 99th percentile.

Solutions

1a) about .9264       b) about .9625
2) \( z \approx -.6745 \) \( z \approx -.5244 \) and \( z \approx 1.6449 \)
3a) about .1186       b) about .1817       c) about 90.09
4) .4582       5) .9251       6) .6958       7) .0849       8) .4286       9) 0
10) .4415       11) .1492       12) 32.36 sec
13) .9881       14) 91.46