

Normal Distribution problems

Questions:

- For each z -score, find the area to the left and the area to the right.
(a) $z = 1.00$, (b) $z = 2.50$, (c) $z = -0.46$, (d) $z = -2.19$.
- For each pair of z -scores, find the area between them and the area outside of them.
(a) $z_1 = -1.00$, $z_2 = 1.00$, (b) $z_1 = 2.00$, $z_2 = 2.50$, (c) $z_1 = -2.33$, $z_2 = 2.33$, (d) $z_1 = -2.19$, $z_2 = 2.19$.
- For each area, find the z -score with that area to the left.
(a) 0.10, (b) 0.25, (c) 0.60, (d) 0.98.
- For each area, find the number z so that the area between $-z$ and z is the given area.
(a) 0.50, (b) 0.80, (c) 0.95, (d) 0.99
- If an observation is 2.37 standard deviations below the mean, its z -score is _____.
- Find the area between 100 and 200 under a normal curve with $\mu = 120$ and $\sigma = 50$.
- Find the 90th percentile of the normal curve in the previous problem.
- Body temperatures of healthy adults are normally distributed with a mean of 98.20°F and a standard deviation of 0.62°F according to a study by University of Maryland doctors.
 - What proportion of healthy adults have body temperatures greater than 98.6°F , the value often thought to be the mean?
 - What proportion of healthy adults have body temperatures between 98.00°F and 99.00°F ?
 - Find the two temperatures that are the endpoints of the middle 99% of body temperatures of healthy adults.
 - Find the 10th percentile of the distribution.