Assignment 18.3 : Problem Statement

You take the SAT and score 1100. The mean score for the SAT is 1026 and the standard deviation is 209. How well did you score on the test compared to the average test taker?.

Solution:

Step 1: Write your X-value into the z-score equation. For this sample question the X-value is your SAT score, 1100.

Z = (1100 - μ)**/** σ

Step 2: Put the mean, μ, into the z-score equation.

Z = (1100 - 1026)**/** σ

Step 3: Write the standard deviation, σ into the z-score equation.

Z = (1100 - 1026)**/** 209

Step 4: Calculate the answer

Z= (1100 – 1026) / 209 = 0.354067. This means that your score was 0.354 standard deviations above the mean.

Step 5: Look up the z-value in the z-table to see what percentage of test-takers scored below you.

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517

A z-score of 0.354 is 0.1368 ,
As the z-table shown has scores for the RIGHT of the mean. Therefore, we have to add .500 for all of the area LEFT of the mean.

Hence 0.1354 + 0.5000 = .6368 or 63.68% of test-takers scored below you