Honors Statistics
Review: Empirical Rule and z-scores

A certain standardized test is normally distributed with a mean of 75 and a standard deviation of 6. What percent of students have a score

1) between 63 and 87
2) between 57 and 75
3) between 69 and 87
4) between 57 and 93
5) between 75 and 87
6) between 69 and 81
7) more than 93
8) less than 69
9) more than 81
10) less than 63

The mean rate for satellite television from a sample of households was $49.00 per month with a standard deviation of $2.50 per month. (assume the distribution is normal)

Between what two values do:
11) 99.7% of the data lie?
12) 68% of the data lie?
13) 95% of the data lie?

An automobile tire has a mean life span of 35,000 and a standard deviation of 2250 miles. Assume the life spans have a bell-shaped distribution.

Find the z-scores for the following tires.

14) 34,000 miles
15) 31,000 miles
16) 37,000 miles
17) 40,000 miles

18) Are any of these tires considered an unusual life span? Explain.

Comparing Test Scores
The mean of a statistics test is 63 with a standard deviation of 7.
The mean of a biology test is 23 with a standard deviation of 3.9.

Determine on which test the student had a better score.

19) 73 on the statistics test and 26 on the biology test
20) 60 on the statistics test and 20 on the biology test
21) 78 on the statistics test and 29 on the biology test
22) 64 on the statistics test and 24 on the biology test

Answers

1 95%
2 49.85%
3 81.5%
4 99.7%
5 47.5%
6 68%
7 .15%
8 16%
9 16%
10 2.5%
11 41.5 to 56.5
12 46.5 to 51.5
13 44 to 54
14 z = -.44
15 z = -1.78
16 z = .89
17 z = 2.22
18 40,000 is an unusual life span
19 1.43, .77 statistics test
20 -.43 , -.77 statistics test
21 2.14, 1.54 statistics test
22 .14, .26 biology test