Math 153 - Quiz 7

October 2, 2018

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is worth 5 points. YOU MUST WORK INDIVIDUALLY.

1. (2 points) The tallest living man is Sultan Kosen, who has a height of 251 cm. The shortest living man is Chandra Bahadur Dangi, who has a height of 54.6 cm. Assuming men's heights have mean 174.12 cm and standard deviation 7.10 cm, compute the z-scores for the tallest and shortest man. Whose height is more extreme?

TALL...

$$z = \frac{251 - 174.12}{7.10} \approx 10.83$$

THE SHORTEST MAN'S HEIGHT IS MORE EXTREME.

SHORT...

$$z = \frac{54.6 - 174.12}{7.1} \approx -16.83$$

2. (3 points) The following are some data speeds (Mbps) from Sprint collected at various airports. (The data are arranged in ascending order.)

0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.8	1.0
1.1	1.1	1.2	1.2	1.6	1.6	2.1	2.1	2.3	2.4
2.5	2.7	2.7	2.7	3.2	3.4	3.6	3.8	4.0	4.0
5.0	5.6	8.2	9.6	10.6	13.0	14.1	15.1	15.2	30.4

(a) Find the percentile corresponding to 2.7 Mbps.

$$\frac{\text{NUMBER OF VALUES} < 2.7}{50} = \frac{31}{50} = 0.62 \Rightarrow 62^{\text{ND}} \text{ PERCENTILE}$$

(b) What data speed is at the 85th percentile?

$(0.85)(50) = 42.5 \Rightarrow$ USE $L = 43$

43^{RD} VALUE IS 8.2 Mbps

(c) What data speed is at the 50th percentile?

$$\text{MEDIAN} = \frac{25^{\text{TH}} + 26^{\text{TH}}}{2} = \frac{1.6 + 1.6}{2} = 1.6 \text{ Mbps}$$