

Math 153 - Quiz 3
September 18, 2014

Name key _____
Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (6 points) Refer to the snowfall data on the attached sheet.

(a) Find the percentile for the value 13.1.

$$\frac{\# \text{ OF VALUES } < 13.1}{44} \times 100\% = \frac{26}{44} \times 100\% \approx 59\%$$

59TH PERCENTILE

(b) Find the value of the 85th percentile.

$$\frac{L}{44} = 0.85 \Rightarrow L = 37.4 \Rightarrow L = 38$$

38TH VALUE IS 18.9

(c) Find the value of the 25th percentile.

$$\frac{L}{44} = 0.25 \Rightarrow L = 11 \quad \frac{11^{\text{TH}} + 12^{\text{TH}}}{2} = \frac{4.3 + 5.0}{2}$$

$$= \span style="border: 1px solid black; padding: 2px;">4.65$$

2. (4 points) Use your calculator to compute the sample mean and standard deviation of the January snowfalls. Then find the z-score corresponding to the 85th percentile, which you computed above.

$$\bar{X} \approx 11.345$$

$$s_x \approx 8.316$$

$$Z = \frac{18.9 - 11.345}{8.316} \approx \span style="border: 1px solid black; padding: 2px;">0.91$$

January Snowfall at O'Hare Airport (Inches)

1960-2005 (Excluding 1997 and 1998)

0.4	0.5	1.5	1.6	2.0	3.0	3.2	3.5	3.5	3.7
4.3	5.0	5.4	5.6	5.9	6.2	6.9	7.2	7.4	7.6
9.5	10.0	10.0	10.4	11.1	11.7	13.1	13.6	14.2	14.6
15.2	15.5	15.5	16.8	17.2	17.3	18.6	18.9	21.9	22.9
25.1	27.8	29.6	34.3						