qz05_s20.doc

20-Feb-20

Name KEY

Row # (from the door) _____, Seat # (from the front) _____

Quiz 5

Always show enough of your set up and work to indicate how you arrived at your answer. If it is not clear how you got your answer, you may not get full credit for the problem. Note that there are two bonus points.

(5) **I. The following is a stem-and-leaf display of a random sample of the ages of purchasers of tickets to the Primus concert this summer at the Greek Theater in Berkeley.**

```
Stem-and-leaf of Weight  N  = 25
Leaf Unit = 1.0

 1    1  9
 3    2  14
 8    2  55779
(7)   3  0013444
10    3  5569
 6    4  034
 3    4  58
 1    5
 1    5  6
```

(2) 1. Compute the range $56 - 19$ $R =$ 37

(3) 2. The five-number summary is: 19, 27 ($\frac{27+27}{2}$), 34, 39.5 ($\frac{39+40}{2}$), 56

(4) **II. Find the following measures for the set of data in the table.**

(1) 1. Mean (note the sum of the x's is given) $\frac{66}{6}$ $\bar{x} =$ 11

(3) 2. Complete the following table and compute the variance and standard deviation (show work) Round, if necessary, to the nearest hundredth (two places to the right of the decimal point).

x	$x - \bar{x}$	$(x - \bar{x})^2$
6	−5	25
9	−2	4
10	−1	1
12	1	1
14	3	9
15	4	16
Σ 66	0	56

$s^2 = \frac{56}{5} = 11.2$ $s^2 =$ 11.2

$s = \sqrt{11.2} \approx 3.346640\ldots$ $s =$ 3.35

$\rightarrow 3.35$

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(4) III. Use your TI calculator (you don't want to do this by hand) to find the sample mean, sample standard deviation and the five-number summary (do not round your answers for the mean and standard deviation, list what your calculator gives you) of the following set of numbers:

69, 74, 59, 73, 76, 65, 58, 72, 77, 71, 73, 76, 75 xmin 52 60 xmax xscl = 4

(2) 1. Create a histogram for this data with cutpoints at 52, ~~60~~, ~~64~~, …, 84. When you get the histogram on your screen raise your hand and I will initial it off. (Caution: if you don't get it right the first time do parts 2 and 3 and come back to the histogram.)

Ymin = -1 or —
Ymax = 5.5 or —

OK: CS

(1) 2. Report the mean calculated (***do not round***) $\bar{x}$ = 70.615384 62

(1) 3. Report the standard deviation calculated (***do not round***) s = 6.265493616

not σ = 6.019691553

(6) IV. Given the data (note that is only a partial set of the data) 24, 25, 32, …,75, 76, 83 and the following five-number summary: 24, 41, 51, 57, 83. Find:

(1) 1. Find the interquartile range, 57 − 41 = 16 IQR = 16

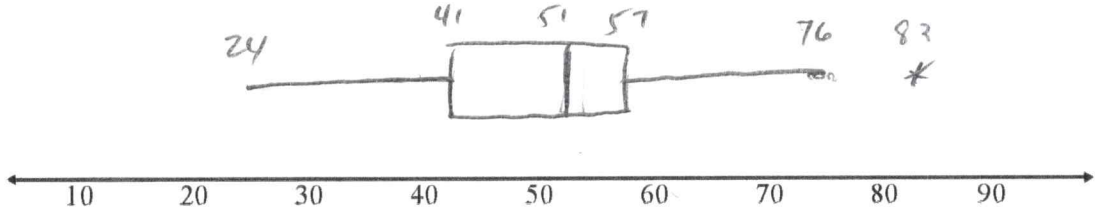
(1) 2. Find the midquartile $\frac{41+57}{2} = \frac{98}{2}$ midQ = 49

(2) 3. Based on the 1.5(*IQR*) criterion find the lower and upper fences.

$f_L = 41 - 1.5(16) = 41 - 24 = 17$
$f_U = 57 + 24 = 81$

f_L = 17, f_U = 81

(2) 4. Sketch the boxplot (box-and-whisker plot), (sketch *horizontally*, above the axis, indicting outliers, if there are any, with *). Indicate on the graph the value of all key points: Each of the five-number summary values, the endpoints of the whiskers, and outliers (if any).

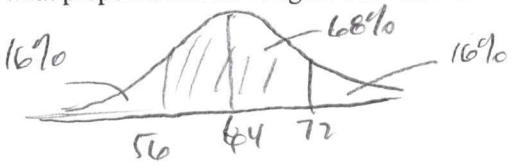


(3) V. Use the Empirical Rule (68-95-99.7% rule) to answer the following questions for the distribution of weights of newborn calves which is approximately normal (bell-shaped) with a mean of 64 lbs and a standard deviation of 8 lbs. (Hint: make a sketch and make use of the symmetry of bell-shaped data.)

1. Approximately what proportion of the weights will be between 48 and 80 lbs.?
2 × 8 = 16 so this is ± 2 st. dev. .95 or 95%

2. Between what two numbers will there be about 68% of all the weights?
64 − 8 to 64 + 8
56 and 72

3. Approximately what proportion of the weights will less than 72 lbs.?



84%