MGF 1106
Chapter 13, Statistics, Practice Test

Use this data table for questions within the practice test.

Geographic Latitude and Mean August Temperature

City	Latitude	Aug. Temp.
Miami FL	26	83
Houston TX	30	82
Mobile AL	31	82
Phoenix AZ	33	92
Dallas TX	33	85
Los Angeles CA	34	75
Memphis TN	35	81
Norfolk VA	37	77
San Francisco CA	38	64
Baltimore MD	39	76
Kansas City MO	39	76
Washington DC	39	74
Pittsburgh PA	40	71
Cleveland OH	41	70
New York NY	41	76
Boston MA	42	72
Syracuse NY	43	68
Minneapolis MN	45	71
Portland OR	46	69
Duluth MN	47	64

I. Specify whether each of the following is quantitative or qualitative.

1. Your favorite color.
2. Miles driven to school.

II. Using both the Geographical Latitude and the August temperatures, find the following:

3. Create a stem and leaf display
4. Mean
5. Median
6. Mode
7. Range
8. Standard Deviation
9. Midrange

III. Construct a grouped distribution and a histogram with class width of 5.

10. For the latitudes use a lower limit of 25.
11. For the temperatures use a lower limit of 60.

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IV. Adult IQ Scores have a normal distribution with a mean of 100 and a standard deviation of 15.

12. Using the Empirical Rule, between what two IQ scores would 95% of adults fall?
13. Using the Empirical Rule, what percentage of IQ's are less than 85?
14. Calculate the z-score for an adult with in IQ score of 67.

V. In a certain young forest, the heights of the spruce trees are normally distributed with mean 5.5 meters and standard deviation 2.1 meters. If a single tree is selected randomly, find the probability (to the nearest thousandth) that its height will fall in each of the following intervals.

15. less than 6.5 meters
16. between 6.2 and 9.4 meters

VI. 17. **Suppose for a given year that the mean monthly price of a pound of coffee is $3.09 and the standard deviation was $0.10. For a gallon of unleaded gasoline the mean monthly price was $1.45 with a standard deviation of $0.10. Which was more volatile?**

VII. A car insurance company conducted a survey to find out how many car accidents people had been involved in. They selected a sample of 32 adults between the ages of 30 and 70 asked each person how many accidents they had been involved in the past ten years. The following is the distribution table.

Number, x	Frequency, f	Relative Frequency
0	11	0.3438
1	10	0.3125
2	5	0.1563
3	3	0.0938
4	2	0.0625
5	1	0.0313

18. Find the probability that the number of accidents a person has been involved in is between 2 and 4, inclusive.

VIII. 19. **Last semester, Tanya Reeves received a B in a four-credit hour course, and A in a three-credit hour course, a C in a three-credit hour course, and an A in another three-credit hour course. Calculate Tanya's GPA for the previous semester. Round your answer to the nearest hundredth.**

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Answers:

1. qualitative
2. quantitative
3. First statistical value is for latitude, second statistical value is for temperature.

2	6
3	0 1 3 3 4
3	5 7 8 9 9 9
4	0 1 1 2 3
4	5 6 7

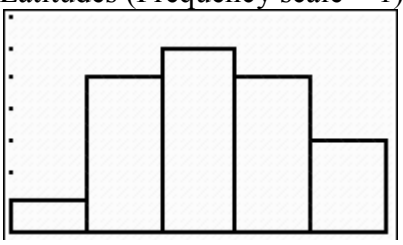
6	4 4 8 9
7	0 1 1 2 4
7	5 6 6 6 7
8	1 2 2 3 5
9	2

4. $\overline{X} = 37.95, \overline{X} = 75.4$
5. Median = 39, Median = 75.5
6. Mode = 39, Mode = 76
7. Range = 21, Range = 28
8. $s = 5.5864$, $s = 7.1994$
9. Midrange = 36.5, Midrange = 78

10 & 11. Grouped Distribution:

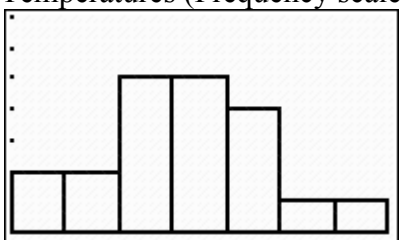
Class Limits	Freq	Relative freq	Class Limits	Freq	Relative freq
25-29	1	0.05	60-64	2	0.1
30-34	5	0.25	65-69	2	0.1
35-39	6	0.3	70-74	5	0.25
40-44	5	0.25	75-79	5	0.25
45-49	3	0.15	80-84	4	0.2
			85-89	1	0.05
			90-94	1	0.05

Latitudes (Frequency scale = 1)



25 30 35 40 45 50

Temperatures (Frequency scale = 1)



60 65 70 75 80 85 90 95

12. 70 to 130
13. 16%
14. $z = -2.2$
15. 0.684
16. 0.34
17. Gasoline
18. 0.3126
19. 3.23