



I. IDENTIFICATION. Identify the following terms:

1. the true class limits
2. the midpoint of a class interval
3. line chart of the cumulative frequency distribution
4. line chart of frequency distribution
5. ordered data
6. type of table that has no table title, column headings, table borders
7. part of a table that is located at the leftmost of the table
- 8 – 10. three components of the heading of a formal statistical table

II. Answer the following questions:

1. How many significant figures are there in each of the following recorded measurements:
 - a. 1.15×10^{-5}
 - b. 0.000320
 - c. 100.25
2. What is the class size of each one of the intervals below?
 - a. 10.1 – 14.0
 - b. 100.00 – 124.99
 - c. 0.15 – 0.18
3. If the lower class limit of the first class is 50.00 and all the class sizes are equal to 8, what should be the upper class limit of the first class?
4. If the lower class limit of the first class is 0.12 and all the class sizes are equal to 0.04, what should be the upper class limit of the next class?
5. Given the following greater than cumulative frequency distribution:

Class Boundaries	>CF
49.5 – 54.5	120
54.5 – 59.5	84
59.5 – 64.5	57
64.5 – 69.5	28

- a) How many observations belong in the third interval?
- b) How many observations are greater than 54.5?
- c) What is the total number of observations?
- d) What is the lower class limit of the second class?

6. Given the following less than cumulative frequency distribution:

Class Boundaries	<CF
49.5 – 54.5	12
54.5 – 59.5	36
59.5 – 64.5	55
64.5 – 69.5	80

- How many observations belong in the last class?
- How many observations are less than 54.5?

7. Given the following data:

i	1	2	3	4	5
X_i	12	3	5	2	10
Y_i	10	8	3	6	2

- What is the value of $\sum_{i=1}^5 X_i Y_i$?
 - What is the value of $\frac{\sum_{i=1}^5 X_i}{\sum_{i=1}^5 Y_i}$?
 - What is the value of $\sum_{i=2}^3 X_i^i$?
 - What is the value of $\frac{1}{\left(\sum_{i=1}^5 X_i\right)\left(\sum_{i=1}^5 Y_i\right)}$?
 - What is the value of $\sum_{i=1}^5 i Y_3$?
8. How many elements are there in the index set of the summation,
 $\sum_{i=3}^8 (X_i - \bar{X})^2$?
9. What is the expansion of the summation, $\sum_{x=4}^6 (-1)^{x+1} (3^{2x} - x)$?
10. What is the expansion of the summation, $\sum_{i=1}^{80} 5$?

III. The table below shows information on 57 different models of cars:

Manufacturer	Model	Type	Engine Size (in liters)	Maximum Horsepower
Acura	Integra	Small	1.8	140
Acura	Legend	Midsize	3.2	200
Audi	90	Compact	2.8	172
Audi	100	Midsize	2.8	172
BMW	535i	Midsize	3.5	208
Buick	Century	Midsize	2.2	110
Buick	LeSabre	Large	3.8	170
Buick	Roadmaster	Large	5.7	180
Buick	Riviera	Midsize	3.8	170
Cadillac	DeVille	Large	4.9	200
Cadillac	Seville	Midsize	4.6	295
Chevrolet	Cavalier	Compact	2.2	110
Chevrolet	Corsica	Compact	2.2	110
Chevrolet	Camaro	Sporty	3.4	160
Chevrolet	Lumina	Midsize	2.2	110
Chevrolet	Lumina APV	Van	3.8	170
Chevrolet	Astro	Van	4.3	165
Chevrolet	Caprice	Large	5.0	170
Chevrolet	Corvette	Sporty	5.7	300
Chrysler	Concorde	Large	3.3	153
Chrysler	LeBaron	Compact	3.0	141
Chrysler	Imperial	Large	3.3	147
Dodge	Colt	Small	1.5	92
Dodge	Shadow	Small	2.2	93
Dodge	Spirit	Compact	2.5	100
Dodge	Caravan	Van	3.0	142
Dodge	Dynasty	Midsize	2.5	100
Dodge	Stealth	Sporty	3.0	300
Eagle	Vision	Large	3.5	214
Ford	Festiva	Small	1.3	63
Ford	Escort	Small	1.8	127
Ford	Tempo	Compact	2.3	96
Ford	Mustang	Sporty	2.3	105
Ford	Probe	Sporty	2.0	115
Ford	Aerostar	Van	3.0	145
Ford	Taurus	Midsize	3.0	140
Ford	Crown Victoria	Large	4.6	190
Geo	Metro	Small	1.0	55

Geo	Storm	Sporty	1.6	90
Honda	Prelude	Sporty	2.3	160
Honda	Civic	Small	1.5	102
Honda	Accord	Compact	2.2	140
Hyundai	Exel	Small	1.5	81
Hyundai	Elantra	Small	1.8	124
Hyundai	Scoupe	Sporty	1.5	92
Hyundai	Sonata	Midsize	2.0	128
Infiniti	Q45	Midsize	4.5	278
Lexus	ES300	Midsize	3.0	185
Lexus	SC300	Midsize	3.0	225
Lincoln	Continental	Midsize	3.8	160
Lincoln	Town Car	Large	4.6	210
Mazda	323	Small	1.6	82
Mazda	Protégé	Small	1.8	103
Mazda	626	Compact	2.5	164
Mazda	MPV	Van	3.0	155
Mazda	RX-7	Sporty	1.3	255
Mercedes-Benz	190E	Compact	2.3	130

- Construct the frequency distribution of the type of car.
- Suppose you were to construct the frequency distribution of the maximum horsepower of these cars.
 - How many classes should there be if you were to use Sturges' formula? (Write the formula/s and round-off answer to the nearest integer.)
 - Using the rounded answer in (1), what should the class size be if we were to use equal class sizes? (Write the formula/s and round-off answer to the nearest integer.)
 - Construct the frequency distribution of the maximum horsepower of the 57 cars using the class size computed in (2) using 30 as the lower class limit of the first class.

IV. The frequency distribution of the ages of employees who were absent more than 10 days last year is as follows:

<u>AGE</u> <u>(in years)</u>	<u>Number of</u> <u>Employees</u>
20 – 24	36
25 – 29.....	60
30 – 34.....	33
35 – 39.....	30
40 – 44.....	11

- Construct the frequency polygon.

2. Construct the percentage distribution
3. Construct the greater than cumulative frequency.
4. Construct the graph of the greater than cumulative frequency.

V. The frequency distribution of the prices of the available houses that a real estate agent in London has for sale is as follows:

<u>Price</u> <u>(in thousand of pounds)</u>	<u>No. of Houses</u>
20 – 39	15
40 – 59	27
60 – 99	50
100 – 139	35
140 – 199	22

Construct the frequency histogram.

VI. Prove $\sum_{i=1}^n [a + (i-1)d] = na + \frac{dn(n-1)}{2}$ where a and d are fixed real numbers.

Use the properties of summation and the result that $\sum_{i=1}^n i = \frac{n(n+1)}{2}$:

VII. State 5 flaws of the following chart:

