Jakarta International School
6th Grade

Formative Assessment
Graphing and Statistics -Black

Name: _____

Date: _____

Score : $\frac{\quad}{42}$

Data collection, presentation and application

Frequency tables. *(Answer question 1 on separate paper.)*

1) It is easy to get the impression from a map of the United States that the country is "flat", yet the average elevation of the states above sea level varies from less than 100 feet for Delaware to nearly 7,000 feed for Colorado. Here is a table listing the mean elevations of the 50 states, each to nearest 100 feet.

1. Alabama, 500
2. Alaska , 1900
3. Arizona , 4100
4. Arkansas , 700
5. California , 2900
6. Colorado , 6800
7. Connecticut , 500
8. Delaware , 100
9. Florida , 100
10. Georgia , 600
11. Hawaii , 2000
12. Idaho , 5000
13. Illinois , 600
14. Indiana , 700
15. Iowa , 1100
16. Kansas , 2000
17. Kentucky , 800
18. Louisiana , 100
19. Maine , 600
20. Maryland , 400
21. Massachusetts , 500
22. Michigan , 900
23. Minnesota , 1200
24. Mississippi , 300
25. Missouri , 800
26. Montana , 3400
27. Nebraska , 2600
28. Nevada , 5500
29. New Hampshire , 1000
30. New Jersey , 300
31. New Mexico , 5700
32. New York , 1000
33. North Carolina , 700
34. North Dakota 900
35. Ohio , 900
36. Oklahoma , 1300
37. Oregon , 3300
38. Pennsylvania , 1100
39. Rhode Island , 200
40. South Carolina , 400
41. South Dakota , 2200
42. Tennessee , 900
43. Texas , 1700
44. Utah , 6100
45. Vermont , 1000
46. Virginia , 1000
47. Washington , 1700
48. West Virginia , 1500
49. Wisconsin , 1100
50. Wyoming , 6700

a. Make a frequency distribution of these elevations by grouping them together in intervals of 500 feet. Number the first column in your table like this: (2pts)

Elevation
0 – 500
600 – 1000
1100 – 1500
1600 – 2000

and so on. (The last line should read 6600 – 7000)

b. What percent of the states have average elevations of 500 feet or less? (1pt)

c. What percent are on the average, more than a mile high? (1 mile = 5,280 ft). (1pt)

d. Statistician Mr. Janeczko, comments on your work. He says, "It isn't necessarily correct to conclude on the basis of your frequency distribution that the average elevation in the United States is about 1,000 feet." Explain why he makes this statement. (2pts)

Circle Graphs. *(Answer question 2 on separate paper.)*

2) Make a circle graph that showing the percent of U.S. curbside recycling programs in 2000 that existed in each region. Use a calculator and protractor and include a 'Key' and labels. (4pts)

U.S. Curbside Recycling Programs by Region in 2000				
Region	Northeast	South	Midwest	West
Percent	37.41%	15.43%	38.74%	8.42%

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Measures of Central Tendency ***(****Answer question 3 on separate paper.)*

3) Did you know that the earth is the only planet in our solar system that has exactly one moon? Here is a list of the planets and the number of moons of each one.

Planet	Moons
Mercury	0
Venus	0
Earth	1
Mars	2
Jupiter	12
Saturn	10
Uranus	5
Neptune	2
Pluto	0

a. Find the mean average number of moons per planet.

b. Arrange the 9 numbers in order and find the median number of moons per planet.

c. What is the mode number of moons per planet?

d. Which one of these three numbers do you think best represents the typical number of moons per planet? (Name it) (1pt each)

4) There are 4 children in the Lee family, including a pair of twins.

Here are the averages of their ages:

Mean = 8.5
Median = 10
Mode = 11

Use this information to work out the ages of all the children. (3pts)

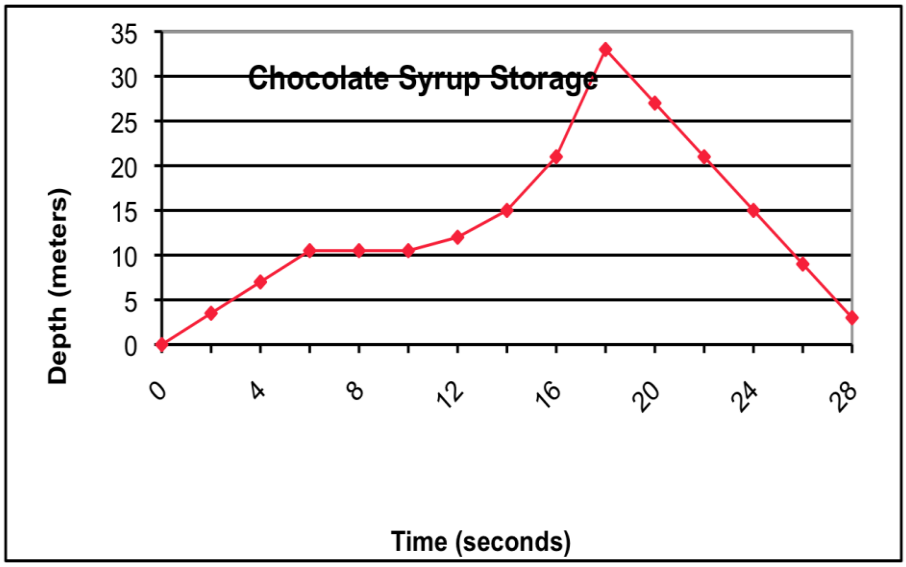
5) Find the list of numbers.
There are 7 whole numbers in the group. The least number is 15 and the greatest is 33. The mean is 23. The median is 22. The mode is 19. (2pts)

6) Mr. and Mrs. Henry want to buy a new PC. Mr. Henry gathers approximate prices of seven different models available in the market.

That evening, Mr. Henry says, "The average or mean price of the PCs is $2400 and the median is $1900. If we consider this information, there is only one model, which is within our budget of $2000. That doesn't give us much choice."
Mrs. Henry says, "No dear, you are wrong! We have plenty of choice."
How does Mrs. Henry know this? (3 pts)

Reading and interpreting graphs.

7) The graph shows the amount of chocolate syrup in Cadbury's main storage tank.



a. Estimate the depth of syrup in the tank after 2 seconds. (1pt)

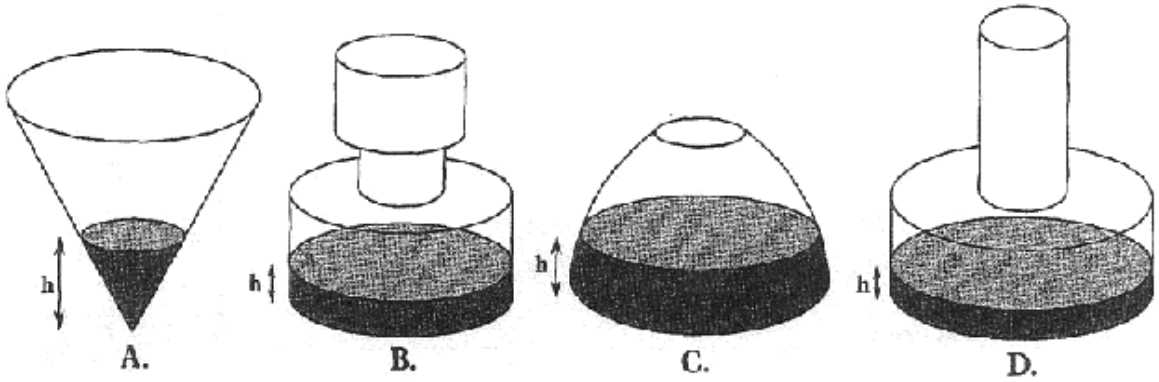
b. Estimate the depth of syrup in the tank after 22 seconds. (1pt)

c. Briefly explain why the graph looks the way it does from 6 seconds until 10 seconds. (1pt)

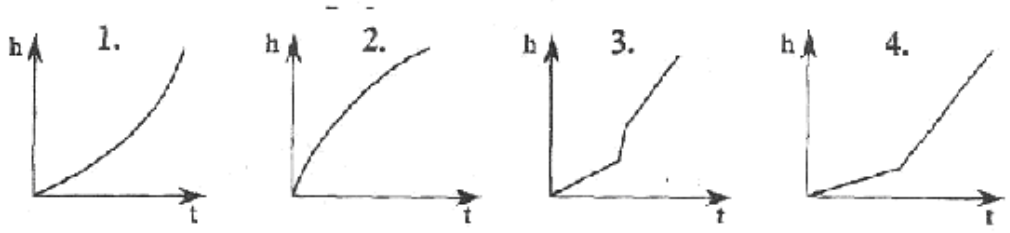
d. Compare the intervals 0-6 seconds and 18-28 seconds.
Which interval shows the tank emptying and which shows the tank filling? Does the tank fill faster than it is emptied?
How do you know? (2pts)

e) Briefly explain why the graph <u>curves</u> upward in the interval 10-18 seconds. (1pt)

8)



Water is poured into these containers at the rate of 150ml per second. The graphs below show how the height of the water changes with time.
Match the containers with the graphs.



(4pts)

Container	A	B	C	D
Graph				

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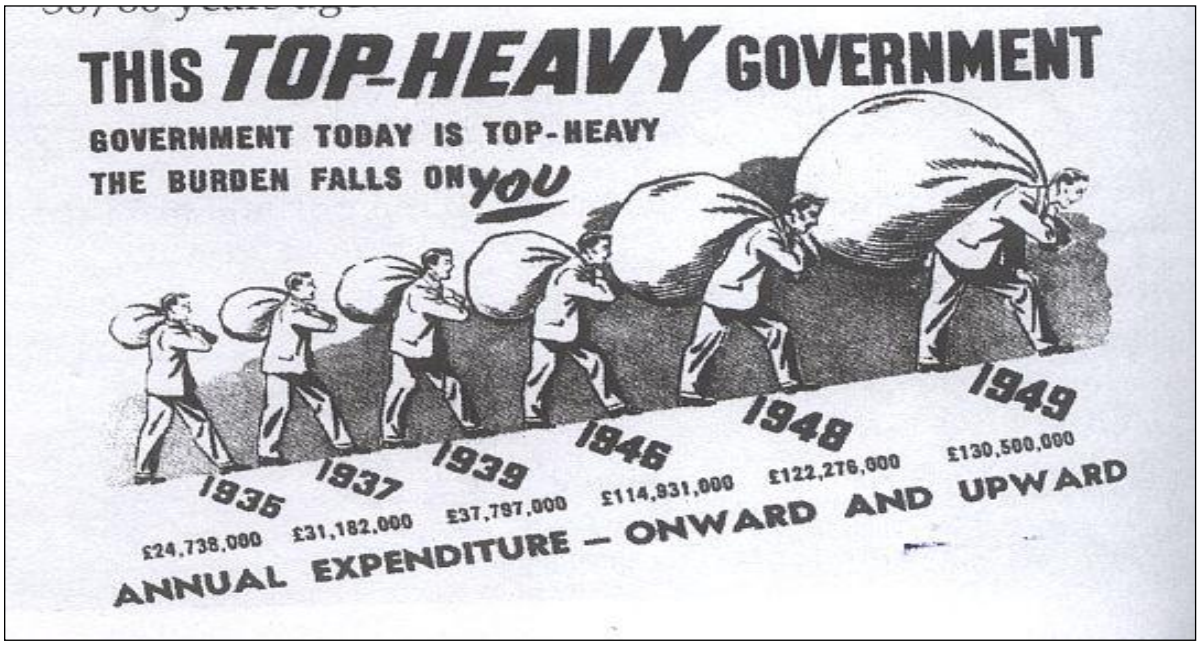
9) Misleading Graphs. *(Answer question 6 on separate paper. Give a detailed answer)*

Political advertising has often been misleading – even 50/60 years ago!
Explain how this National Party campaign advertisement in 1949 about the costs of government is misleading. (3 pts)



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Vocabulary.
10) Match the vocabulary terms with the definitions. (1pt each)

Definition	Your answer	Vocabulary
A table for organizing a set of data that shows the number of times each item or number appears.		1. Statistics.
A data point that is much different than the others in a set of data.		2. Bar Graph

The difference between the greatest number and the least number in a set of data.		3. Interval
A graph used to compare quantities		4. Frequency table
The study of collecting, analyzing and presenting data.		5. Range.
The difference between the values on the y-axis.		6. Outlier

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