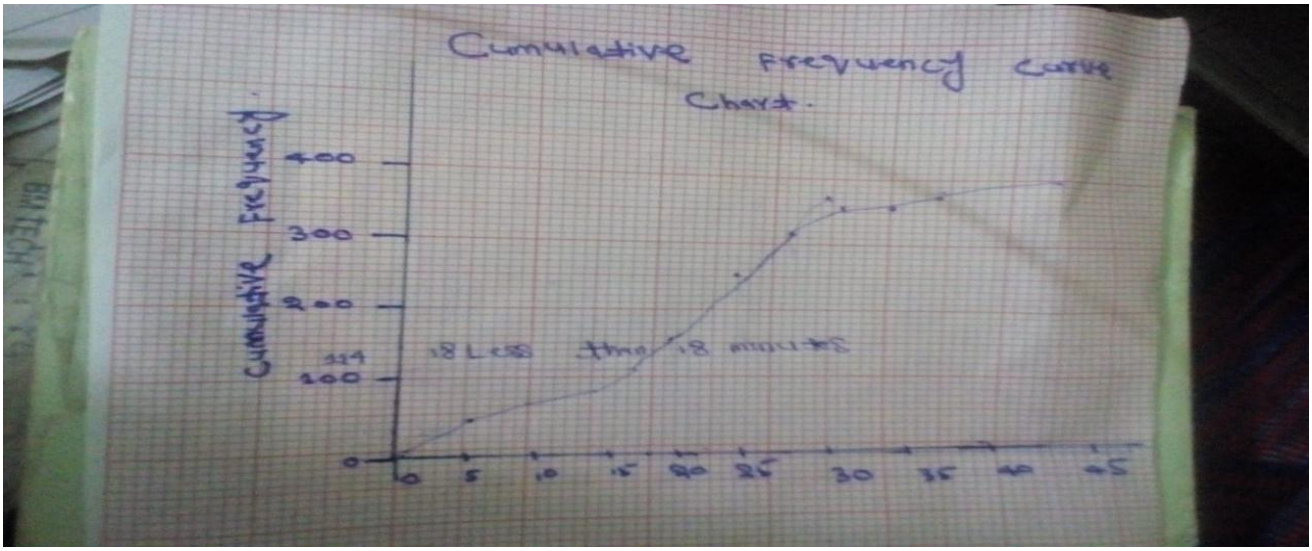
Name Adnan

Id 13507

Q1.

- **Solved**
- (a) In Cumulative Frequency Curve that's show the times taking by the students long walk to school on the particular morning.
- Now first we draw a cumulative frequency curve chart.

  Cumulative frequency chart are following:

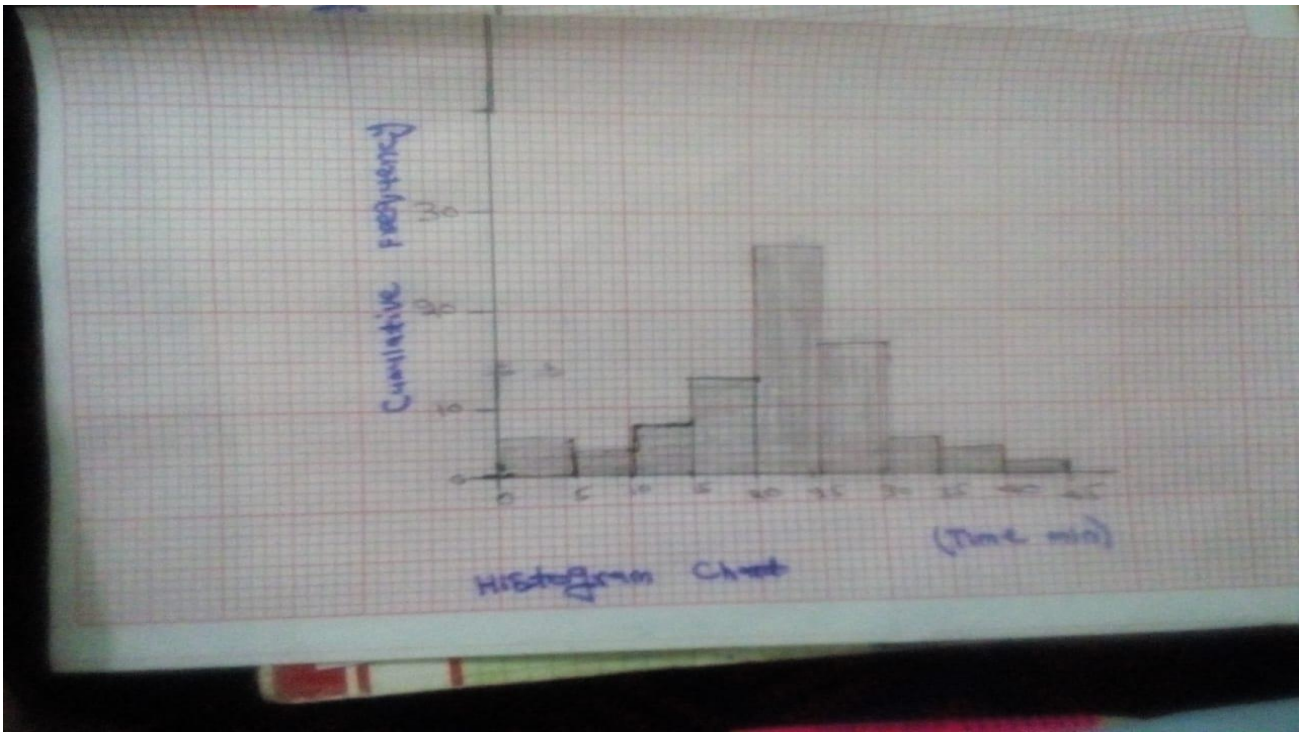


- **Estimating from the Frequency Distribution graph 114 students are taking long on school less than 18 minutes...**

  (b) **Now we are taking from the frequency distribution calculate the frequency density for each interval. Continues ----------**

- We know Frequency density =frequency+ interval width. Here class interval width is 5.

Upper boundry	Cumulative Frequency	Time(min)	Frequency	Frequency density
5	25	0-	25	25/5=5
10	45	5-	45-25=20	20/5=4
15	81	10-	81-45=36	36/5=7.2
20	143	15-	143-81=62	62/5=12.4
25	280	20-	280-143=137	137/5=27.4
30	349	25-	349-280=69	69/5=13.8
35	374	30-	374-349=25	25/5=5
40	395	35-	395-374=21	21/5=4.2
45	400	40-(45)	400-395=5	5/5=1
			Total=400	



<u>Histogram Chart------</u>

Q2.

Solved.

First we construct group distribution table for the following data …

Now we convert the dada in order form …

363,369,371,372,377,381,382,386,387,389,390,391,392,393,394,396,399,400, 401,405,408,409,410,411,415,419,422,423,428,431.

Were n=30

Now we find range Range= large-small

R=431-363=68

Suppose we take 8 classes of equal size .

The size would be **68/8=8.5=9**

h=9 **Class interval = 8**

Table of group data

Class boundary	361-369	370-378	379-387	388-396	397-405	406-414	415-423	424-432	
Frequency	2	3	4	7	4	5	3	2	

Now we are find the Mean of the above group data…

Class boundary	Frequency	Midpoint	Frequency*Midpoint
361-369	2	365	2*365=730
370-378	3	374	3*374=1122
379-387	4	383	4*383=1532
388-396	7	392	7*392=2749
397-405	4	402	4*402=1608
406-414	5	412	5*412=2060
415-423	3	421	3*421=1263
424-432	2	429	2*429=858
	ΣF=30		ΣFX=11922

- **$\bar{x}$= ΣFX/ ΣF= 11922/30**

Mean $\bar{x}$ = 397.4 ANS.

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- **Now we find the mode of the above group data …**

- We know that mode = i+ fm-f1/(fm-f1)+(fm-f2)*h
  Where I = lower class boundary
  Fm = frequency of model class
  F1 = frequency of associative class with preceding class
  F2= frequency associative class with the model class
  h = width of class interval.
  In the above group data …
  I = 388
  fm =7
  f1 = 7-4=3
  f2 = 7-4=3
  h = 9
  mode?

  Now write the mode formula
  Mode = I + fm-f1/(fm-f1)+(fm-f2)*h
  Now put values in mode formula
  Mode = 388+ 7-3/(7-3)+(7-3)*9
  = 388+ 4/4+4*9
  = 392*9/8
  = 3528/8
  Mode = 441 ANS.

Now we are find quantiles of the above data group table.

Continuous ……

Class boundary	Frequency	Cumulative Frequency
361-3659	2	30
370-378	3	28
379-387	4	25
388-396	7	21
397-406	4	14
407-414	5	10
415-423	3	5
424-432	2	2
	n =30	

We know lower Quantiles formula.

Q1= L+(n/4-CFb)/f *i

1st step n/4 = 30/4=7.5

the model class frequency =7.

L= 388-0.5=387.5

Cfb =14

I = 9

F=7 put this all values in Quantiles formula**...**

Q1 = 387.5 (7.5-14)/7*9

Q1 =387.5+(-6.5)/7*9

= 387.5 -8.357

Quantiles = 379. ANS …

Q3.

Solved.

Relationship between standard deviation and the mean of two sets

- The standard deviation and the mean two sets is a measure of dispersion. Both are appropriate descriptive statistics for normally distributed data sets using ratio or interval scaling.
- the ratio relationship is the same as it is for the binomial distribution. Both mean and standard deviation are used in calculating some correlation coefficients, effect sizes, (Analysis of Variance).

_____ * _____ * _____ * _____ * _____ *

Q 4.

Solved.

We know that variance and standard deviation formula

- $S^2 = \Sigma FD/\Sigma F - (\Sigma FD/\Sigma F)^2$

where S^2 is a symbol of variance
D is a deviation .

Now draw the variance group data table.

Class boundary	Frequency	Mid.point x	D=X-A	FD	FD^2
64-84	15	74	74-124.5**=-50.5**	15*-50.5**=-757.5**	**-38253.75**
85-104	18	95.5	95.5-124.5**=-29.5**	18*-29.5**=-531**	**5075298**
105-124	27	124.5	124.5-124.5=**0**	**0**	**0**
125-144	10	134.5	134.5-124.5=**10**	10*10**=100**	**100000**
145-164	6	154.5	154.5-124.5=**30**	6*30**=180**	**5400**
165-184	5	174.5	174.5-124.5=**50**	5*50**=250**	**12500**
185-204	13	194.5	194.5-124.5=**70**	13*70**=910**	**63700**
	n=94			**ΣFD=151.5**	**ΣFD^2 =5218644.25**

We assume A=124.5

we know that $s^2 = \Sigma FD/\Sigma F - (\Sigma FD/\Sigma F)^2$

put values in the variance formula.

$s^2 = 5218644.25/94 - (151.5)^2/94$

$= 490552559.2 - (1.61170)^2$

$= 490552559.2 - 2.5975$

$s^2 = 490552556.602$

now we are taking square root of the following values for standard deviation.

$\sqrt{s^2} = \sqrt{490552556.602}$

$\sqrt{s^2} = 22148.4210$ **ANS.**

Q 5
Solved.

Comment.

comment of the given sentences are followings:

(a)

yes he can do that because the depth of the river is 5 ft average its cannot deep uniform.

It can be 2ft in one location of the river depth and 7ft of the other location of the river.

it can be 4-ft at one place and 12 or more feet at others.

Ofcourse the average of the river is 5ft so the 5ft persons can easily cross it .

(b)

Yes The students of the class are hopeless because the average marks of the students is 30 %. But that's not the uniform way to assume the marks because that's the average .some of other students obtained good marks in the class .

So ofcourse the average marks of the class is 30% so the maximum students of the class hopeless to obtained 30% marks.

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(c)

Yes the king fabulously paid to their household servants because he is a king and all the country resources and income are distribute and manage by him command . so the king will be fabulously paid £20,000 per month is the monthly average amount .

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THE END…