

3<sup>rd</sup> Term Portion

Class - 8 Mathematics

Chapter - 17 Bar Graph, Histograms, and Pie Charts

Ex 17.1.

1.

i)

a) Upper limit = 10 , Lower limit = 0

$$\begin{aligned}\text{Class size} &= \text{Upper limit} - \text{Lower limit} \\ &= 10 - 0 \\ &= 10\end{aligned}$$

b) Upper limit = 7 , Lower limit = 0

$$\begin{aligned}\text{Class size} &= \text{Upper limit} - \text{Lower limit} \\ &= 7 - 0 \\ &= 7\end{aligned}$$

c) Upper limit = 100 , Lower limit = 0

$$\begin{aligned}\text{Class size} &= \text{Upper limit} - \text{Lower limit} \\ &= 100 - 0 \\ &= 100\end{aligned}$$

ii)

$$a) \text{ Upper limit} = 10, \text{ Lower limit} = 5$$

$$\text{Class Mark} = \frac{\text{Upper limit} + \text{Lower limit}}{2}$$

$$= \frac{10 + 5}{2} = \frac{15}{2} = \frac{10 + 5}{2}$$

$$= \frac{15}{2}$$

$$= \text{mark} = 7.5 = \text{mark}$$

$$b) \text{ Upper limit} = 12, \text{ Lower limit} = 6$$

$$\text{Midpoint or Class mark} = \frac{\text{Upper limit} + \text{Lower limit}}{2}$$

$$= \frac{12 + 6}{2}$$

$$= \frac{18}{2}$$

$$= \text{mark} = 9 = \text{mark}$$

$$c) \text{ Upper limit} = 10, \text{ Lower limit} = 0$$

$$\text{Class mark} = \frac{\text{Upper limit} + \text{Lower limit}}{2}$$

$$= \frac{10 + 0}{2}$$

$$= \frac{10}{2}$$

$$= 5$$

d) Upper limit = 90 , lower limit = 80

$$\text{Class mark} = \frac{90+80}{2} = \frac{170}{2} = \underline{85}$$

e) Upper limit = 75 , lower limit = 70

$$\text{Class mark} = \frac{75+70}{2} = \frac{145}{2} = 72.5$$

f) Upper limit = 38 , lower limit = 30

$$\text{Class mark} = \frac{38+30}{2} = \frac{68}{2} = 34$$

(iii)

a) 70-80 , ~~and~~

∴ The four more class intervals are  
80-90 , 90-100 , 100-110 , 110-120

b) 30-35

∴ The four more class intervals are  
35-40 , 40-45 , 45-50 , 50-55

b c) 0-6

∴ The four more class intervals are  
6-12 , 12-18 , 18-24 , 24-30

2

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2.

### v) Frequency Table

Shoe sizes	Tally mark	frequency
5	III II	7
6	III III	9
7	III III	10
8	III III	9
9	III	5
	Total	40

(i) 5, 6, 7, 8 each of the items are observations

(ii) 5, (iii) 9, (iv) ~~9~~  $9 - 5 = 4$

3.

### Frequency Distribution Table

Weight	Tally mark	frequency
40	III I	6
41	III	5
42	IIII	4
43	<del>III</del> III	4
44	III I	6
45	III	5
	Total	30

4.

## — Frequency Distributions Table

Marks	Tally Marks	Frequency
0-10	I	1
10-20	III	3
20-30	IIII	4
30-40	IIII I	6
40-50	IIII IIII	9
50-60	IIII IIII I	11
60-70	IIII II	7
70-80	IIII	5
80-90	III	3
90-100	I	1
	Total	50

i) 9, ii) 98, iii)  $9 + 98 - 9 = 98$

iv) Continuous for form data.

v) This collection of data is known as raw data

vi) 10.

5.

## — Frequency Table

S.no	Blood group	Tally	Frequency
1.	A	IIII IIII I	11
2.	B	IIII IIII	10
3.	AB	IIII	4
4.	O	IIII	5
	Total		30

6.

Jan	25	July	29
Feb	30	Aug	40
March	37	Sept	42
April	40	Oct	37
May	36	Nov	32
June	32	Dec	29

$$\text{Average} = \frac{\text{Sum of all observation}}{\text{Total no. of observation}}$$

$$= \frac{25 + 30 + 37 + 40 + 36 + 32 + 29 + 40 + 42 + 37 + 32 + 29}{12}$$

$$= \frac{409}{12} = 34.08333\dots$$

$$= 34.08 \text{ (approx.)}$$

7.

— Given heights of all the players in ascending order.

141, 146, 148, 148, 152, 154, 160, 161, 162, 165, 166

Now,

$$\text{Average} = \frac{141 + 146 + 148 + 148 + 152 + 154 + 160 + 161 + 162 + 165 + 166}{11}$$

$$= \frac{1700}{11}$$

$$= 154.545455$$

$$= 154.55 \text{ (approx.)}$$

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— Arrange the following data in ascending order

2.5, 2.8, 3.0, 3.3, 4.0, 4.3, 6.5, 7.6

Now,

$$\text{Average or Mean} = \frac{2.5 + 2.8 + 3.0 + 3.3 + 4.0 + 4.3 + 6.5 + 7.6}{8}$$

$$= \frac{34}{8}$$

$$= 4.25$$

Ex 17.1

9.

No. of pens ( $x_i$ )	Cost (₹) ( $f_i$ )	$\Sigma f x_i$
1	30	30
2	35	70
3	20	60
4	10	40
5	5	25

Total = 100

$\Sigma f x_i = 225$

Now

$$\text{Arithmetic mean} = \frac{225}{100}$$

$$= 2.25$$



10.

Marks	Mid value ( $x_i$ )	Frequency ( $f_i$ )	$\sum f_i x_i$
0-10	5	5	25
10-20	15	10	150
20-30	25	15	375
30-40	35	17	595
40-50	45	13	585

$$\text{Total } \sum f_i = 60 \quad \sum f_i x_i = 1730$$

$$\text{Arithmetic mean} = \frac{1730}{60}$$

$$= 28.83333333$$

$$= 28.83$$

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PAGE

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110.

— Cumulative frequency table

Marks	No. of students	Cumulative frequency
0-20	5	$0+5=5$
20-40	11	$5+11=16$
40-60	19	$16+19=35$
60-80	11	$35+11=46$
80-100	4	$46+4=50$

12.

• Mid values of each class

i, ~~0-20~~  $0-20 = \frac{20+0}{2} = 10$

ii)  $20-40 = \frac{40+20}{2} = 30$

iii)  $40-60 = \frac{60+40}{2} = 50$

iv)  $60-80 = \frac{80+60}{2} = 70$

v)  $80-100 = \frac{100+80}{2} = 90$

Now,

Marks (class)	Mid value ( $x_i$ )	frequency ( $f_i$ )	$f_i x_i$
0-20	10	5	$10 \times 5 = 50$
20-40	30	11	$30 \times 11 = 330$
40-60	50	19	$50 \times 19 = 950$
60-80	70	11	$70 \times 11 = 770$
80-100	90	4	$90 \times 4 = 360$
(Total $f_i$ ) = 50			$\Sigma f_i x_i = 2460$

∴ Arithmetic mean =  $\frac{\Sigma f_i x_i}{\Sigma f_i}$

$= \frac{2460}{50}$

$= 49.2$

13.

i) Weight in kg

Real lower and upper limits

35-40

35.5 - 39.5

40-45

~~39.5~~ 40.5 - 44.5

45-50

45.5 - ~~50.5~~ 49.5

50-55

50.5 - ~~55~~ 54.5

ii) Age of people

Real lower and upper limits

4-6

4.5 - 6.5

6-8

6.5 - 7.5

8-10

8.5 - 9.5

10-12

10.5 - 11.5

Ex 17.1

14.

— Frequency Table

Weight	Tally marks	frequency
120-140	III IIII	9
140-160	III III III I	16
160-180	III III III	15
	Total	40

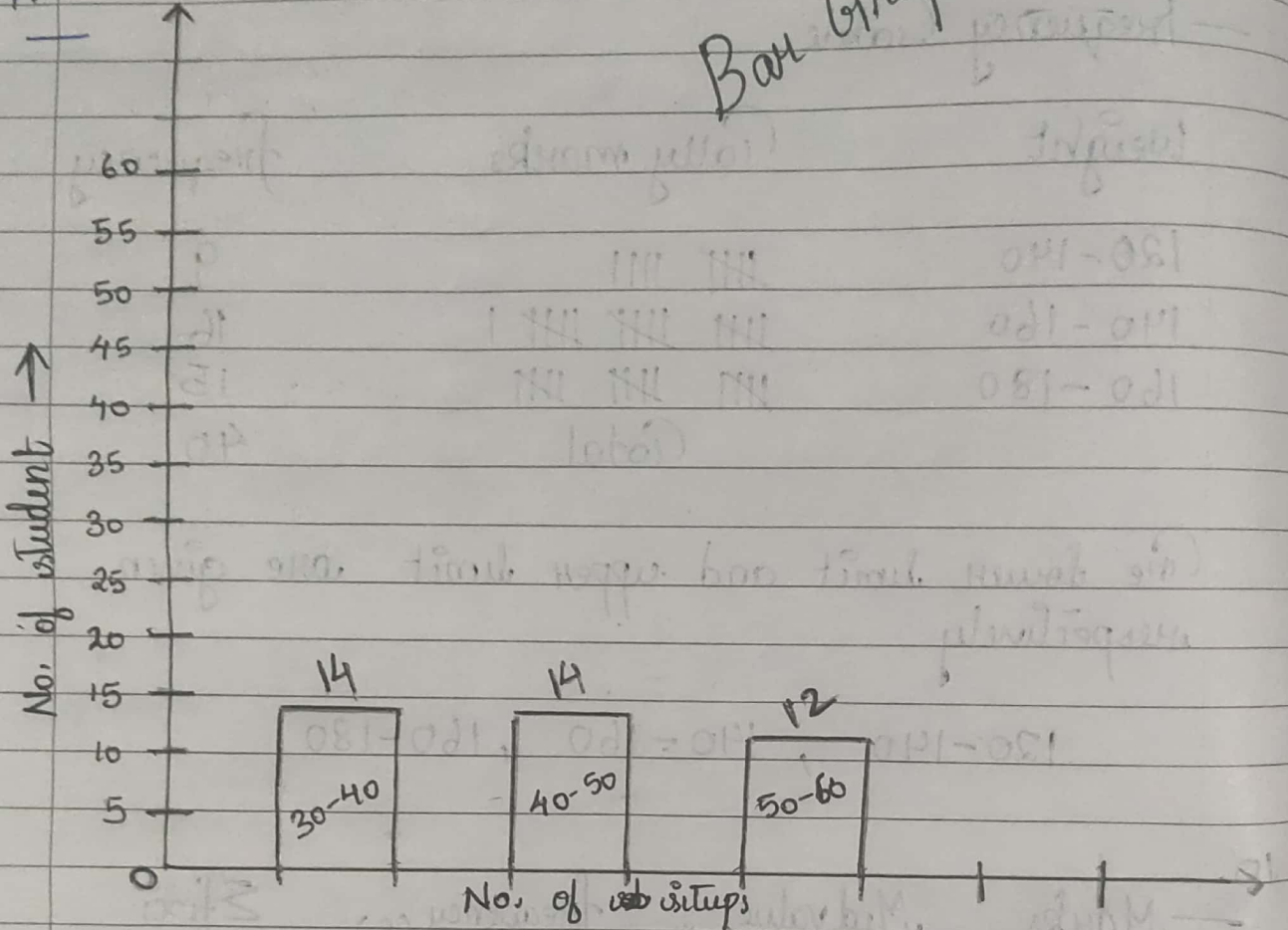
The lower limit and upper limit are given respectively

120-140 , 140-160 , 160-180

Ex 17.2

1.

Bar Graph



i) 55 situps.

ii) 34 situps.

iii) 12 student.

iv) 14 student

## Frequency Table

No. of sit ups

Tally marks

frequency

30-40

|||| |||

14

40-50

|||| |||

14

50-60

|||| ||

12

Total

40

## Ex 17.3

1.

- i) March and May
- ii) July
- iii) January and November
- iv) ~~February~~ February, April, June, September, December.
- v) August and October.
- vi) 60 cans were sold in the first quarter of the year.
- vii) 70 cans were sold in the second quarter of the year.
- viii) 125 cans were sold in the third quarter of the year.
- ix) 95 cans were sold in the fourth quarter of the year.
- x) Third quarter of the year.

2.

- i) Horse is faster

2.

- i) Horse is faster than dog by 9 km/h
- ii) Cheetah is faster than horse by 40 km/h
- iii) Tortoise.
- iv) Cheetah.

3.

- i) Blue whale
- ii) Flamingo
- iii) African Elephant and Rhinoceros.



5.

— i) Mumbai , ii) Kolkata and Chennai  
iii)

Ex Ex 17.4

1.

— i) 15 , ii) 23 , iii) 6 , iv) 23  
v) medium weight boxers (80-100)kg.  
vi) Heavy weight boxers (above 100 kg).

2.

— i) 60 , ii) ~~58~~ 2 , iii) 38 , iv) 11  
v) 20 , vi) 58 , vii) 60-70.

Ex 17.4

3.

Year

Exports (₹)

1997-1998

6

1998-1999

8

1999-2000

10

2000-2001

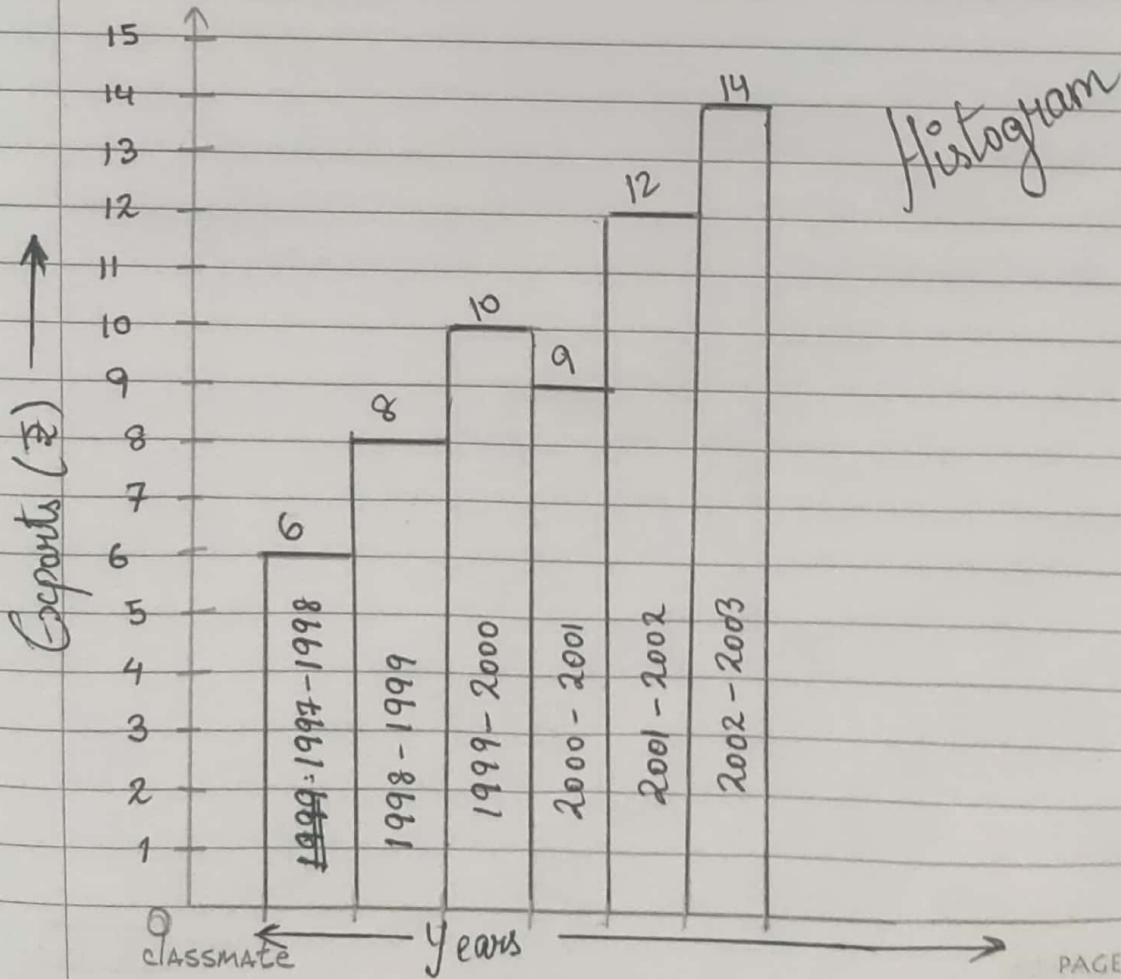
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2001-2002

12

2002-2003

14



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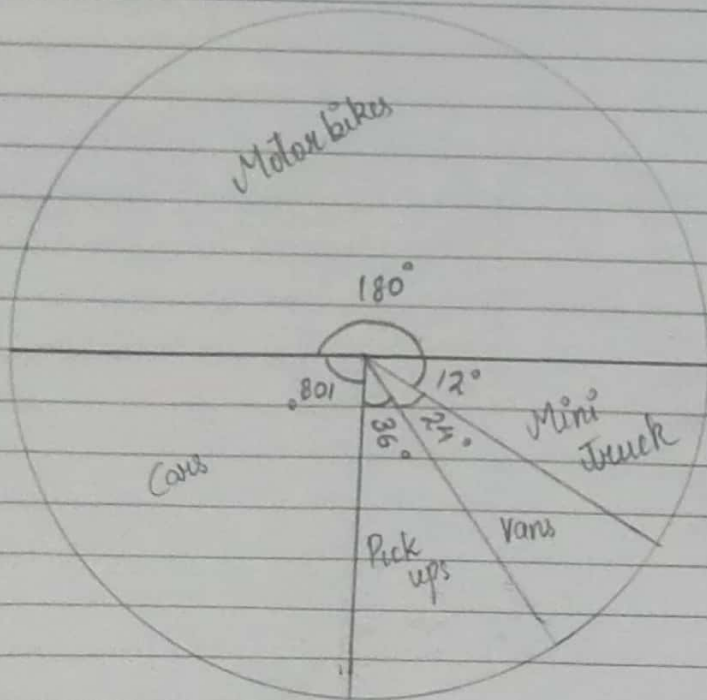
Ex 17.5

2.

Vehicles	frequency	Percentage	degree	Round off
Motor bikes	6000	$\frac{6000}{12000} \times 100 = 50\%$	$50 \times 3.6 = 180^\circ$	$180^\circ$
Cars	3600	$\frac{3600}{12000} \times 100 = 30\%$	$30 \times 3.6 = 108^\circ$	$108^\circ$
Pick ups	1200	$\frac{1200}{12000} \times 100 = 10\%$	$10 \times 3.6 = 36^\circ$	$36^\circ$
Vans	800	$\frac{800}{12000} \times 100 = 6.7\%$	$6.7 \times 3.6 = 24.12^\circ$	$24^\circ$
Mini Trucks	400	$\frac{400}{12000} \times 100 = 3.3\%$	$3.3 \times 3.6 = 11.8^\circ$	$12^\circ$

Total = 12000

Total =  $360^\circ$



Submitted by   
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