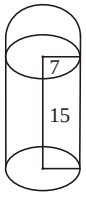
9. Volume of solid = Volume of Cylinder + Volume of hemisphere



$$= \pi r^2 h + \frac{2}{3}\pi r^3$$

$$= \pi r^2 \left(h + \frac{2}{3} r\right)$$

$$= \frac{22}{7} \times 7^2 \left[15 + \frac{2}{3} \times 7\right]$$

$$= 22 \times 7 \left[15 + \frac{14}{3}\right]$$

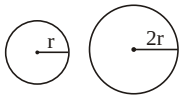
$$= 22 \times 7 \left(\frac{45+14}{3}\right) = \frac{22 \times 7 \times 59}{3}$$

$$= 3028.66 \text{ cm}^3$$

10. $V_1 = \frac{4}{3}\pi r^3$

New r becomes $2r$

$$\therefore V_2 = \frac{4}{3}\pi (2r)^3$$



$$= \frac{4}{3}\pi 8r^3$$

$$= 8\left(\frac{4}{3}\pi r^3\right) = 8V_1$$

$\therefore$ Volume becomes 8 times of its original volume.

MCQs

1. (a) **2.** (c) **3.** (a) **4.** (b) **5.** (c) **6.** (a)

Mental Maths

1. 8
2. Volume
3. 8 times
4. $4\pi r^3$
5. $196\pi \text{ cm}^3$
6. πrl
7. 19404 cm^3
8. $l \times b \times h$

17 Coordinate System and Graphs

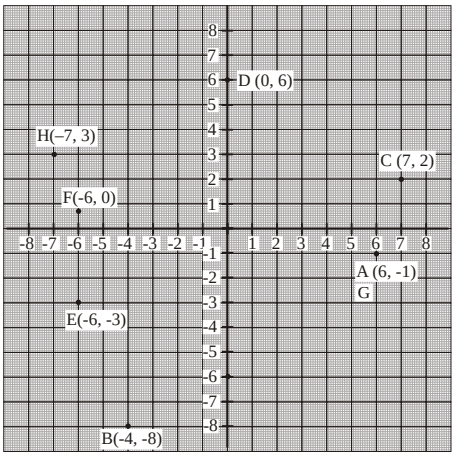
Exercise 17.1

1. Yes (4.5, 0) lies on x-axis
(i) False (ii) False (iii) True (iv) False (v) False (vi) True (vii) True (viii) False.

2. $A(2,2)\, D(-3,1)\, C(-3,-2)\, B(1,-2)$

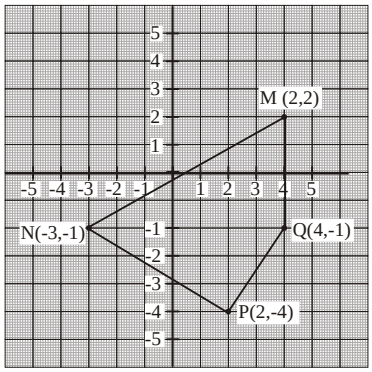
3. (i) $(-4,-3)$ III Quadrant
(ii) $(7-6)$ IV Quadrant
(iii) $(-12,10)$ II Quadrant
(iv) (8, 3) I Quadrant
(v) $(-8,15)$ II Quadrant
(vi) $(-1,-11)$ III Quadrant
(vii) $(3,4)$ I Quadrant
(viii) $(-5,7)$ II Quadrant

4.

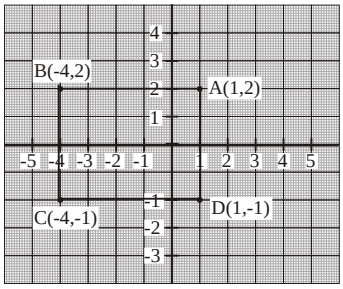


5. Mid point of $(-5,4)$ and (3, 2) is $\left(-\frac{5+3}{2}, \frac{4+2}{2}\right) = (-1,3)$

6. Quadrilateral $MNPQ$ is obtained



7. Rectangle is obtained and Area $= 5 \times 3 = 15$ sq units



Exercise 17.2

1. (i) 3 pm (ii) 1 pm to 3 pm (iii) Total distance travelled
$= 180 + 180 = 360\,\text{km}$

2. (i) May (ii) July (iii) 500 fans.

3. (i) Speed from 0 to 2 seconds $= \frac{0}{2}$
$= 2\,\text{m/s}$

(ii) Speed from 2 to 4 seconds
$= \frac{40}{2} = 20\,\text{m/s}$

(iii) Speed from 4 to 8 seconds
$= \frac{20}{4} = 5\,\text{m/s}$

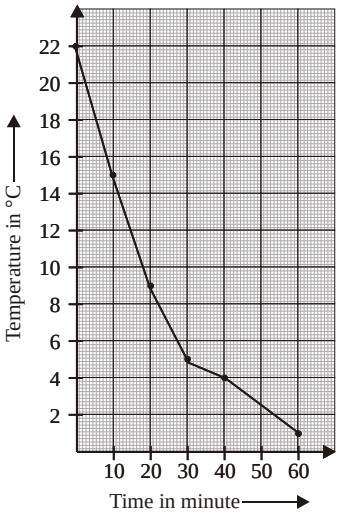
(iv) Average speed from 0 to 8
$= \frac{\text{total distance}}{\text{total time}}$
$= \frac{60}{8}\,\text{m/s}$
$= \frac{15}{2}\,\text{m/s} = 7.5\,\text{m/s}$

4. (i) 101°F (ii) 12 a..m. (iii) 10 am to 11 am.

5. (i) Yes it is a curve.

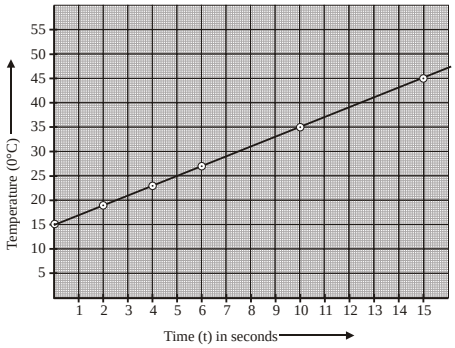
(ii) After 5 minutes temperature is 19°C

(iii) After 15 minutes temperature was 12°C



6. (i) Temperature after 5 seconds is 25°C

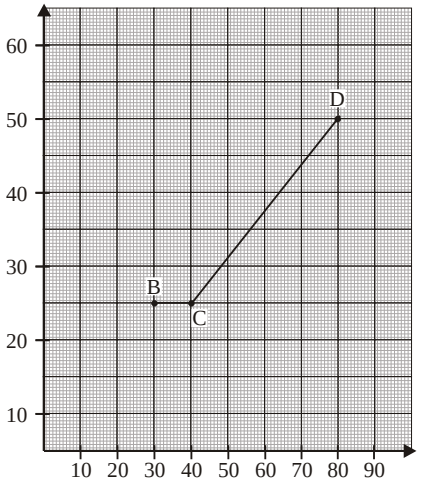
(ii) Temperature after 12 seconds is 39°C



(iii) After 12.5 second temperature is 40°C

(iv) $t = 120\,\text{sec}$ If $T = 55°\text{C}$

7. Distance travelled in first 30 minutes
$= \frac{1}{2} \times 50$
$= 25\,\text{km}$



(i) Total distance travelled is 50 km

(ii) Average speed
$= \frac{\text{total distance}}{\text{total time}}$
$= \frac{50\,\text{km}}{80\,\text{min}}$

$= \frac{50000}{80 \times 60}$ m/s

$= \frac{500}{48}$ m/s or 37.5 km/hr

MCQs

1. (c) **2.** (a) **3.** (d) **4.** (a) **5.** (c) **6.** (c)

Mental Maths

1. abscissa
2. ordinate
3. four
4. *y*-axis
5. *x*-axis
6. II
7. same
8. different

18 Data Handling

Exercise 18.1

1. **(i) Class size :** Difference between upper limit and lower limit is known as class size.

(ii) Class mark : Mid point of class interval is called class mark.

(iii) Frequency of a class : Number of observation of a class is called frequency of a class.

2. (i) Class size is 10.

(ii) Lower limit of 30-40 is 30

(iii) Upper limit of 40-50 is 50

(iv) Class mark of 20-30 is $\frac{30+20}{2} = 25$

(v) Frequency of 10-20 is 90

3.

Wages (in ₹)	Tally Marks	Frequency (No. of workers)
300-320	||||	4
320-340	𝍸 |	6
340-360	|||	3
360-380	||	2
380-400	𝍸 𝍸 ||	12
400-420	𝍸 |	6
420-440	𝍸 |	6
440-460	|	1

4.

Rainfall	0-5	0-10	10-15	15-20	20-25	25-30	30-35
No. of	12	7	4	2	3	1	1

5. (i)

Maximum Temp. in (In °C)	Tally Marks	Frequency
32-33	||||	4
33-34	|||	3
34-35	|||	3
35-36	|||| |	6
36-37	|||	3
37-38		0
38-39	|||	3
39-40	||	2
40-41	||	2
41-42	||	2
42-43	|	1
43-44	|	1

(ii)

Minimum Temp. (In °C)	Tally Marks	Frequency
21-22	|	1
22-23	|	1
23-24	𝍸 |	5
24-25	||	2
25-26	||	2
26-27	||	2
27-28	||	2
28-29	||||	4
29-30	|||	3
30-31	||||	4
31-32	|	1
32-33	||	2
33-34	|	1

Exercise 18.2

1. (i) Total employees = 6 + 4 + 2 + 10 + 8
= 30

(ii) Class size is 5

(iii) Maximum number of employees are in income group of (20 to 25) thousand

(iv) Minimum number of employees are in income group of (15 to 20) thousand.

(v) 2 employees.

(vi) Number of employees and their respective salary.

2. (i) Total workers
= 4 + 6 + 10 + 12 + 8 + 6
= 46

(ii) Maximum workers are in income group of ` 2500 to ` 3000

(iii) Minimum workers are in income group of ` 1000 to ` 1500

(iv) Total works in ` 2000 to ` 3000
= 10 + 12
= 22

3. (i) Class size is 10

(ii) Students got less than 50% marks
= 4 + 8 + 6 + 12 + 8 = 38

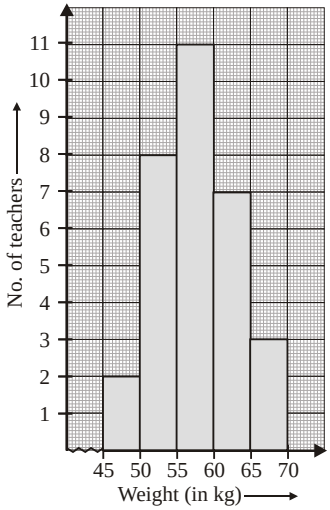
(iii) Student got more than 40% but less than 60% marks
= 8 + 16 = 24

(iv) Students got more than 80% marks
= 4 + 4 = 8

(v) Students got marks between
= 12 + 8 = 20

(vi) Students failed
= 12 + 6 + 8 + 4 = 30

4.



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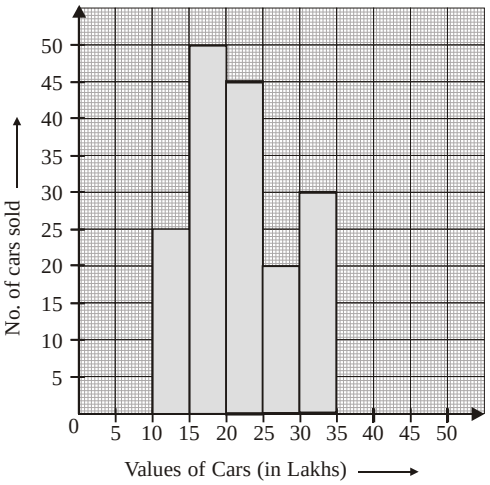

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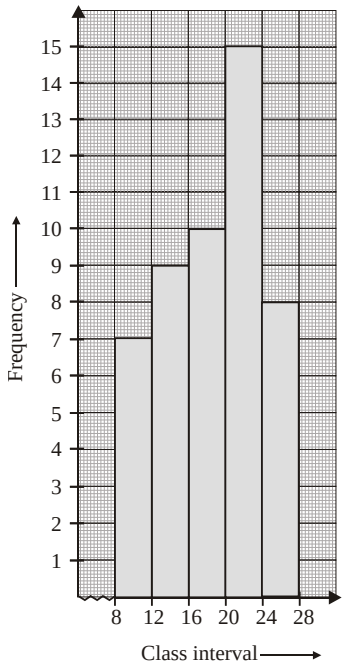

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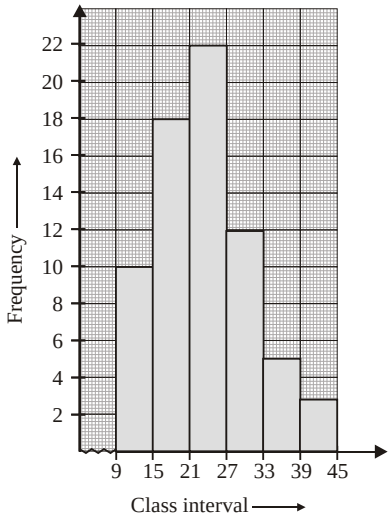

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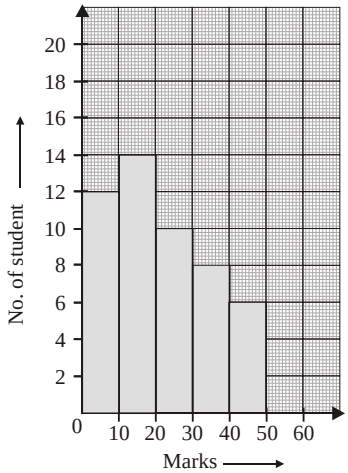


Exercise 18.3

1. (i) Learnt tabla $= \frac{78}{360} \times 300 = 65$

(ii) Learnt violin $= \frac{90}{360} \times 300 = 75$

(iii) Learnt Guitar $= \frac{90}{360} \times 300 = 75$

(iv) other than piano

$= (360 - 78 + 90 + 90 + 36)°$

$= (360 - 296)° = 66$

$= \frac{66}{360} \times 300 = 55$

2. (i) Amount spent cricket $= \frac{150}{360} \times 72000$

$= 150 \times 200$

$= ` 30000$

(ii) Amount spent on hockey

$= \frac{100}{360} \times 72000$

$= 100 \times 200$

$= ` 20000$

Amount spent on football $= \frac{60}{360} \times 72000$

$= 60 \times 200$

$= ` 12000$

Amount spent more on hockey

$= ` (20000 - 12000)$

$= ` 8000$

(iii) On Tennis minimum amount is spent.

(iv) $\frac{\text{Tennis}}{\text{Football}} = \frac{50}{60} = \frac{5}{6}$ or 5 : 6

3. (i) On studies Neha spent half of her time

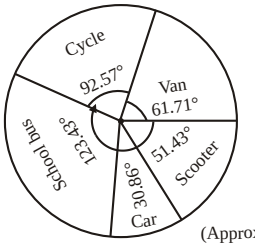
(ii) In games and Laboratory, Neha spent one fourth of the time

(iii) Assembly take minimum time

(iv) Neha spend $\frac{5}{2}$ hours in studies

4.

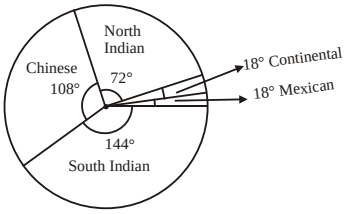
Model of transport	No. of students	Central angle
Van	120	$\frac{120}{700} \times 360° = 61.71°$
Cycle	180	$\frac{180}{700} \times 360° = 92.57°$
School	240	$\frac{240}{700} \times 360° = 123.43°$
Car	60	$\frac{60}{700} \times 360° = 30.86°$
Scooter	100	$\frac{100}{700} \times 360° = 51.43°$
	700	



(Approximately)

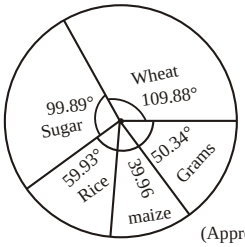
5.

Cuisine	No. of people	Central angle
North Indian	24	$\frac{24}{120} \times 360 = 72°$
Chinese	36	$\frac{36}{120} \times 360 = 108°$
South Indian	48	$\frac{48}{120} \times 360 = 144°$
Continental	6	$\frac{6}{120} \times 360 = 18°$
Mexican	6	$\frac{6}{120} \times 360 = 18°$



6.

Commodity	Annual Production (in tonnes)	Central angle
Wheat	2750	$\frac{2750}{9010} \times 360° = 109.88°$
Sugar	2500	$\frac{2500}{9010} \times 360° = 99.89°$
Rice	1500	$\frac{1500}{9010} \times 360° = 59.93°$
Maize	1000	$\frac{1000}{9010} \times 360° = 39.96°$
Grams	1260	$\frac{1260}{9010} \times 360° = 50.34°$
	Total production = 9010	



(Approximately)

MCQs

1. (d) **2.** (a) **3.** (d) **4.** (i) (b), (ii) (c), (iii) (c)

Mental Maths

1. 90

2. pie chart

3. proportional to the frequency

4. 10

5. group

6. circle graph