

CHAPTER

18

PATTERN

A **pattern** is a set of rule within the numeral and number series, hence refers to certain mathematical operations likewise addition, subtraction, division and multiplication from one term to another term. It can be classified in two ways :

Grid Pattern

It contains more than one numeral within the square rectangle applying certain rule.

e.g.,

6	11	16
9	14	19
13	18	23

Second and third term in each row is exceeding by 5 and 10 of the first term of each row

i.e. Ist row, $6 + 5 = 11$ and $6 + 10 = 16$

IInd row, $9 + 5 = 14$ and $9 + 10 = 19$

IIIrd row, $13 + 5 = 18$ and $13 + 10 = 23$

Example 1. Identify the value of question mark (?).

18	21	24
28	31	34
38	41	44
?	?	?

- (1) 48, 51, 53
- (2) 48, 51, 54
- (3) 46, 49, 52
- (4) 51, 54, 57

Sol. (2) Required pattern,

18	$18 + 3 = 21$	$21 + 3 = 24$
$\downarrow + 10$		
28	$28 + 3 = 31$	$31 + 3 = 34$
$\downarrow + 10$		
38	$38 + 3 = 41$	$41 + 3 = 44$
$\downarrow + 10$		
48	$48 + 3 = 51$	$51 + 3 = 54$

Example 2. If sum of each row, column and diagonals are equal, then the value of P, Q and R respectively is

P	15	22
21	19	Q
R	23	18

(1) 20, 16, 17

(2) 20, 17, 16

(3) 17, 20, 16

(4) 16, 20, 17

Sol. (2) \because Sum of all column are equal.

$$\therefore 15 + 19 + 23 = 22 + Q + 18$$

$$\Rightarrow 57 = 40 + Q \Rightarrow Q = 17$$

Again, sum of all row are equal.

$$\therefore P + 15 + 22 = 21 + 19 + Q = R + 23 + 18$$

$$\Rightarrow P + 37 = 40 + Q = R + 41$$

$$\Rightarrow P + 37 = 40 + 17 \Rightarrow P = 20$$

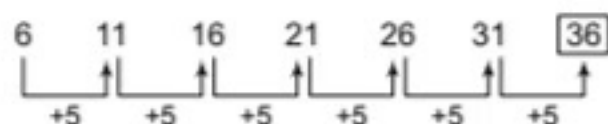
$$\text{and } R + 41 = 40 + 17 \Rightarrow R = 16$$

Series Based Pattern

Such type of questions mainly deals with the pattern of increasing or decreasing of numerals, hence may be operated by the mathematical operations such as addition, subtraction, multiplication and division.

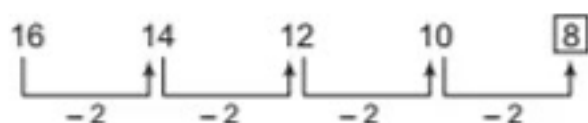
- If the next term is increasing in constant manner, then pattern of addition must take place.
- If the next term is decreasing in constant manner, then pattern of subtraction must take place.
- If the next term is increasing rapidly, then pattern of multiplication must take place.
- If the next term is decreasing rapidly, then pattern of division must take place.

e.g., (i)

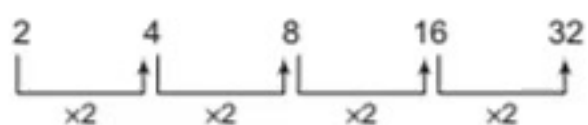


Here, next term is increasing in constant manner.

(ii)

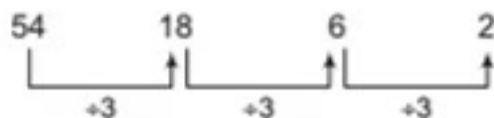


(iii)



Here, next term is obtained by multiplying the previous number by 2.

(iv)



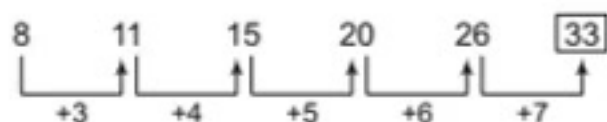
Here, next term is obtained by dividing the previous number by 3.

Example 3. Find the next term of the given series

8, 11, 15, 20, 26, ?

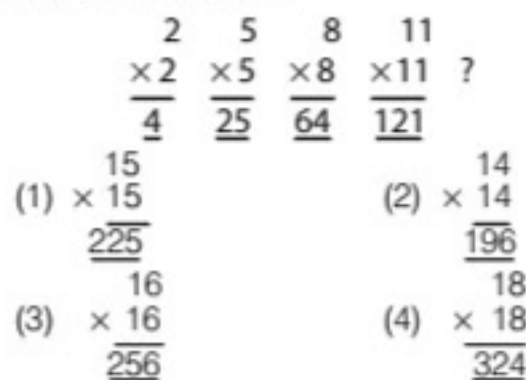
- (1) 30
(2) 32
(3) 33
(4) 34

Sol. (3)



The series is increasing by ascending series by 1.

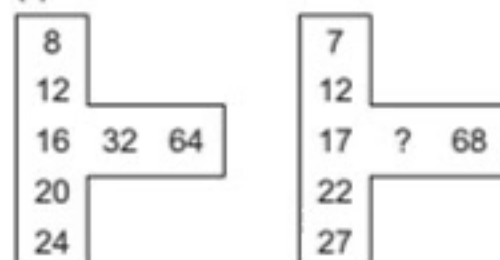
Example 4. Identify the pattern of the question and determine the next term.



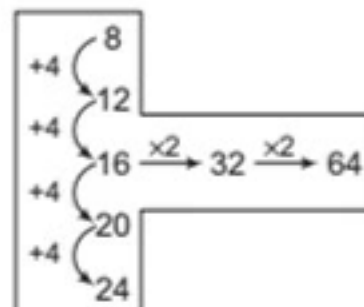
Sol. (2) Every next term is increasing by 3 from the previous one, so the next term will be $14(11 + 3)$.

$$\begin{array}{r} 14 \\ \times 14 \\ \hline 196 \end{array}$$

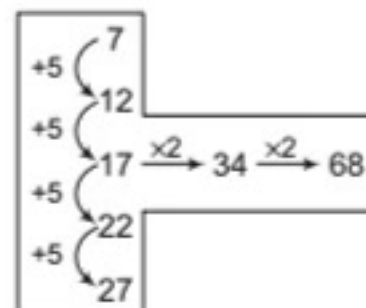
Example 5. Identify the pattern and find the value of question mark (?).



- (1) 35 (2) 40 (3) 34 (4) 45
- Sol. (3) As,



Similarly,



∴

$$? = 34$$

Entrance Corner

- What is the next term in the given series?
9, 13, 17, 21, 25, ? [JNV 2018]
(1) 26 (2) 27 (3) 29 (4) 33
- Next term of 258, 130, 66, 34, 18, ... is [JNV 2017]
(1) 12 (2) 10 (3) 8 (4) 13
- Find the next term of the series
3, 4, 6, 9, 13, ... [JNV 2016]
(1) 18 (2) 17 (3) 14 (4) 19
- The next term of the series 1, 2, 4, 8, ... is [JNV 2015]
(1) 12 (2) 16 (3) 10 (4) 11
- Next term of 80, 10, 70, 15, 60, ... is [JNV 2014]
(1) 20 (2) 25 (3) 30 (4) 50
- If sum of each row, column and diagonals are equal, then the value of x , y , z and w respectively, is [JNV 2014]

8	x	z
y	5	w
4	9	2

- (1) 4, 6, 8, 7 (2) 1, 3, 6, 7
(3) 1, 6, 3, 7 (4) 3, 6, 7, 1
- Numbers in the next line is [JNV 2013]

40	45	50
55	60	65
70	75	80
-	-	-

- (1) 75, 80, 85 (2) 85, 90, 95
(3) 90, 95, 100 (4) 70, 75, 85

- If the sum of each row, column and diagonals are same, then the value of x , y , t and z is [JNV 2013]

x	1	y
3	5	z
t	9	2

- (1) 8, 6, 4, 7 (2) 6, 8, 4, 7
(3) 7, 8, 6, 4 (4) 4, 6, 7, 8

- The next number in the series 2, 5, 8, 11, is [JNV 2012]
(1) 12 (2) 10
(3) 14 (4) 15
- 11, 13, 17, 19, 23, 29, 31, 37, 41,is [JNV 2011]
(1) 42 (2) 43
(3) 44 (4) 45
- Study the following pattern find out the next term. [JNV 2010]

5	15	25	35	45
$\times 5$	$\times 15$	$\times 25$	$\times 35$	$\times 45$
<u>25</u>	<u>225</u>	<u>625</u>	<u>1225</u>	<u>2025</u>
55			55	
$\times 55$		(2) $\times 55$	$\times 55$	
<u>2825</u>			<u>3225</u>	
55			55	
$\times 55$		(4) $\times 55$	$\times 55$	
<u>3025</u>			<u>3225</u>	

- Which group of number will come in the next row? [JNV 2007]

6	24	624
7	28	728
8	32	832
?	?	?

- (1) 9, 36, 936, (2) 9, 36, 972
(3) 9, 81, 981, (4) 9, 63, 963
- What will be the next row of numbers in the following pattern? [JNV 2005]

4	16	64
6	36	216
8	64	512
?	?	?

- (1) 8, 68, 518 (2) 10, 100, 1000
(3) 10, 200, 2000 (4) 10, 500, 5000
- The next two terms in the series 123, 234, 345, are [JNV 2004]
(1) 456, 457 (2) 346, 347
(3) 456, 567 (4) 456, 678

Answers

1. (3)	2. (2)	3. (1)	4. (2)	5. (1)	6. (2)	7. (2)	8. (1)	9. (3)	10. (2)
11. (3)	12. (1)	13. (2)	14. (3)						

Hints and Solutions

1. The series follows the pattern as

$$\begin{aligned}9 + 4 &= 13 \\13 + 4 &= 17 \\17 + 4 &= 21 \\21 + 4 &= 25 \\25 + 4 &= \boxed{29}\end{aligned}$$

Therefore, 29 is the next term in the given series.

2. $258 \xrightarrow{+2+1} 130 \xrightarrow{+2+1} 66 \xrightarrow{+2+1} 34 \xrightarrow{+2+1} 18 \xrightarrow{+2+1} \boxed{10}$

3. $3 \xrightarrow{+1} 4 \xrightarrow{+2} 6 \xrightarrow{+3} 9 \xrightarrow{+4} 13 \xrightarrow{+5} \boxed{18}$

It is clear that next term of series is 18.

4. $1 \xrightarrow{\times 2} 2 \xrightarrow{\times 2} 4 \xrightarrow{\times 2} 8 \xrightarrow{\times 2} \boxed{16}$

5. $80 \xrightarrow{-10} 70 \xrightarrow{-10} 60 \xrightarrow{-10} \boxed{20}$

Hence, 20 is the missing term.

6. Since, the sum of last row
 $= 4 + 9 + 2 = 15$

Now, sum of diagonal

$$\begin{aligned}4 + 5 + z &= 15 \\z &= 15 - 9 \\&= 6\end{aligned}$$

Now, sum of first column

$$\begin{aligned}8 + y + 4 &= 15 \\y &= 15 - 12 \\&= 3\end{aligned}$$

Also, $y + 5 + w = 15$

$$\begin{aligned}3 + 5 + w &= 15 \\w &= 15 - 8 \\&= 7\end{aligned}$$

Now, $8 + x + z = 15$

$$\begin{aligned}8 + x + 6 &= 15 \\x &= 15 - 14 = 1\end{aligned}$$

Hence, x, y, z and w are 1, 3, 6 and 7.

7. $40 \xrightarrow{+15} 55 \xrightarrow{+15} 70 \xrightarrow{+15} \boxed{85}$ (in first column)
 $45 \xrightarrow{+15} 60 \xrightarrow{+15} 75 \xrightarrow{+15} \boxed{90}$ (in second column)
 $50 \xrightarrow{+15} 65 \xrightarrow{+15} 80 \xrightarrow{+15} \boxed{95}$ (in third column)

- 8.

x	1	y
3	5	z
t	9	2

If we put $x = 8, y = 6, t = 4, z = 7$

Then,

8	1	6	= 15
3	5	7	= 15
4	9	2	= 15
15	15	15	

9. The pattern of series is

$2 \xrightarrow{+3} 5 \xrightarrow{+3} 8 \xrightarrow{+3} 11 \xrightarrow{+3} \boxed{14}$

10. The series consists of prime numbers.
 \therefore The missing number is the next prime number which is 43.

11. $55 \times 55 = 3025$

12. 6 and 24 becomes 624.

Where, $6 \times 4 = 24$

Hence, 9 and $9 \times 4 = 36$ becomes 936

\therefore Next group will be 9, 36, 936.

13. Second and third columns are square and cube of the first column.

Hence, 10

$$(10)^2 = 100$$

$$(10)^3 = 1000$$

- 14.

1	2	3				
\times	2	3	4			
	\times	3	4	5		
		\times	4	5	6	
			\times	5	6	7

In the series, left most digit in each term is omitting and the succeeding of the right most digit is appearing.

Practice Exercise

1. Identify the pattern and find the value of question mark?

$$\begin{array}{r}
 4 \quad 9 \quad 14 \\
 + 8 \quad + 13 \quad + 18 \quad ? \\
 \hline
 12 \quad 22 \quad 32
 \end{array}$$

$$\begin{array}{r}
 19 \\
 (1) + 23 \\
 \hline
 42 \\
 17 \\
 (3) + 21 \\
 \hline
 38
 \end{array}$$

$$\begin{array}{r}
 18 \\
 (2) + 22 \\
 \hline
 40 \\
 20 \\
 (4) + 24 \\
 \hline
 44
 \end{array}$$

2. In the following figures, identify the pattern and find the value of question mark(?).



- (1) 34
(3) 35
- (2) 37
(4) 38

3. Identify the pattern and find the value of question mark(?).

$6 \times 6 + 2$	
14	15
$8 \times 8 + 2$	
18	19
+ 2	
12	13

- (1) 4×4
(3) 5×5
- (2) 7×7
(4) 9×9

4. If sum of each row, column and diagonals are equal, then the value of a , b , c and d respectively, is

a	7	14
b	11	d
8	15	c

- (1) 12, 13, 10, 9
(3) 12, 9, 13, 10
- (2) 13, 12, 9, 10
(4) 12, 13, 9, 10

5. If the sum of each row, column and diagonals are equal, then the value of p , q , r and s respectively, is

19	q	21
p	18	16
15	s	r

- (1) 20, 17, 14, 22
(3) 14, 17, 20, 22
- (2) 17, 20, 14, 22
(4) 20, 14, 17, 22

Directions (Q. Nos. 6-12) Find the value of question mark(?).

6. 2, 3, 5, 8, 13, 21, ?

- (1) 30
(3) 35
- (2) 34
(4) 39

7. 8, 20, 32, 44, 56, ?

- (1) 65
(3) 60
- (2) 68
(4) 69

8. 4, 5, 9, 18, 34, ?

- (1) 50
(3) 57
- (2) 58
(4) 59

9. 2, 3, 5, 7, ?

- (1) 9
(3) 11
- (2) 13
(4) 10

10. 122, 248, 326, 414, ?

- (1) 177
(3) 817
- (2) 521
(4) 432

- 11.

8	4	9
2	8	4
3	7	8
14	60	?

- (1) 40
(2) 41
(3) 38
(4) 49

- 12.

3	6	1	18
7	2	4	56
8	4	3	96
?	4	3	48

- (1) 5
(2) 8
(3) 18
(4) 4

Answers

1. (1)	2. (2)	3. (3)	4. (1)	5. (4)	6. (2)	7. (2)	8. (4)	9. (3)	10. (1)
11. (2)	12. (4)								

Hints and Solutions

- $$\begin{array}{cccc}
 & +5 & +5 & +5 \\
 \downarrow & & \downarrow & & \downarrow \\
 4 & 9 & 14 & 19 \\
 \downarrow & \downarrow & \downarrow & \downarrow \\
 +8 & +13 & +18 & +23 \\
 \hline
 12 & 22 & 32 & 42
 \end{array}$$
- As, $18 + 12 + 2 = 32$
Same as, $16 + 19 + 2 = 37$
- As, $6 \times 6 + 2 \Rightarrow 6 + 6 + 2 = 14 \xrightarrow{+1} 15$
and $8 \times 8 + 2 \Rightarrow 8 + 8 + 2 = 18 \xrightarrow{+1} 19$
Same as, $5 \times 5 + 2 \Rightarrow 5 + 5 + 2 = 12 \xrightarrow{+1} 13$
- Now, sum of second column = $7 + 11 + 15 = 33$
Then,

$$a = 33 - (7 + 14) = 12$$

$$b = 33 - (8 + a) = 33 - (8 + 12) = 13$$

$$c = 33 - (8 + 15) = 10$$

$$d = 33 - (14 + c)$$

$$\Rightarrow 33 - (14 + 10) = 9$$

$$\therefore a = 12, b = 13, c = 10 \text{ and } d = 9$$
- Now, sum of diagonal = $15 + 18 + 21 = 54$
then, $p = 54 - (18 + 16) = 20$

$$q = 54 - (19 + 21) = 14$$

$$r = 54 - (21 + 16) = 17$$
and $s = 54 - (15 + r) = 54 - (15 + 17) = 22$
- Pattern of the series is as follow :
 $2 + 3 = 5$
 $5 + 3 = 8$
 $8 + 5 = 13$
 $13 + 8 = 21$
 $21 + 13 = \boxed{34}$

- Pattern of the series is as follow :

$$\begin{array}{cccccc}
 8 & 20 & 32 & 44 & 56 & \boxed{68} \\
 \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\
 & +12 & +12 & +12 & +12 & +12
 \end{array}$$

- Pattern of the series is as follow :

$$\begin{array}{cccccc}
 4 & 5 & 9 & 18 & 34 & \boxed{59} \\
 \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\
 & +(1)^2 & +(2)^2 & +(3)^2 & +(4)^2 & +(5)^2
 \end{array}$$

- Pattern of the series is as follow :

$$2, 3, 5, 7, \boxed{11}$$

Series is containing the prime numbers. Hence, next value after 7 is 11.

- Pattern of the series is as follow :

$$\begin{array}{ll}
 \text{As} & 122 \Rightarrow 1 \times 2 = 2 \\
 & 248 \Rightarrow 2 \times 4 = 8 \\
 & 326 \Rightarrow 3 \times 2 = 6 \\
 \text{and} & 414 \Rightarrow 4 \times 1 = 4 \\
 \text{Same as,} & 177 \Rightarrow 1 \times 7 = 7
 \end{array}$$

- Pattern of the series is as follow :

$$\begin{array}{ll}
 \text{As,} & 8 + (2 \times 3) = 14 \\
 & 4 + (8 \times 7) = 60
 \end{array}$$

Similarly,

$$9 + (4 \times 8) = 41$$

- Pattern of the series is as follow :

$$\begin{array}{ll}
 \text{As,} & 3 \times 6 \times 1 = 18 \\
 & 7 \times 2 \times 4 = 56 \\
 & 8 \times 4 \times 3 = 96
 \end{array}$$

Similarly, $x \times 4 \times 3 = 48$

$$x = \frac{48}{4 \times 3} = 4$$

Self Practice

1. If sum of each row, column and diagonals are equal, then the sum of A and B is

A	3	10
9	7	B
4	11	6

- (1) 12 (2) 13 (3) 14 (4) 18

2. Find the value of question mark (?).

8	11	6
15	10	13
12	15	10
19	14	?

- (1) 17 (2) 15 (3) 14 (4) 21

3. If the sum of each row, column and diagonal is 24, then find the multiple of x and y .

9	y	11
10	8	6
5	x	7

- (1) 32 (2) 40 (3) 44 (4) 48

4. Next term of 69, 55, 26, 13, ... is

- (1) 5 (2) 4 (3) 6 (4) 8

5. Next term of 86, 48, 32, ... is

- (1) 12 (2) 10 (3) 6 (4) 27

6. Identify the pattern and find the value of question mark (?).

21	38	18	35	15	?
14		12		10	

- (1) 40 (2) 30 (3) 32 (4) 36

7. Identify the pattern and find the value of question mark (?).

32	144	?
8 2	4 9	3 8

- (1) 72 (2) 68 (3) 65 (4) 81

Answers

- | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|
| 1. (2) | 2. (1) | 3. (4) | 4. (2) | 5. (3) | 6. (3) | 7. (1) |
|--------|--------|--------|--------|--------|--------|--------|

CHAPTER

19

DATA INTERPRETATION

Data

A collection of numbers (values) gathered to give some information is called data. There are two types of data : (i) Primary data (ii) Secondary data

Pictograph

Pictograph is the way of representing data using image/picture of objects. Each picture (image) stands for a certain number of objects. It helps us to answer the questions on the data at a glance.

e.g., Rajesh was asked to find the number of students playing different games in the school. The information collected by him is as follows :

Football 40, Cricket 30, Basketball 20, Badminton 10











Represent the given information with a pictograph.

Given, information by Rajesh
























Football → 40, Cricket → 30, Basketball → 20, Badminton → 10

The given data can be represented by a pictograph as shown below :

 = 10 students

Football	   
Cricket	  
Basketball	 
Badminton	

Direction (Example 1) Read the given information carefully and answer the question given below.


Months	Sold Bananas
March	     
April	  
May	    
June	 
July	      

[Here,  = 5 dozen]

Example 1. What is the number of sold bananas during all the given months?

- (1) 1380 (2) 1280 (3) 1180 (4) 1480

Sol. (1) ∵ 1 dozen = 12

∴  = 5 dozen = 5×12

Number of sold bananas in March = $6 \times 12 \times 5$
= 360 bananas

Number of sold bananas in April
= $3 \times 12 \times 5 = 180$ bananas

Number of sold bananas in May
= $5 \times 12 \times 5 = 300$ bananas

Number of sold bananas in June
= $2 \times 12 \times 5 = 120$ bananas

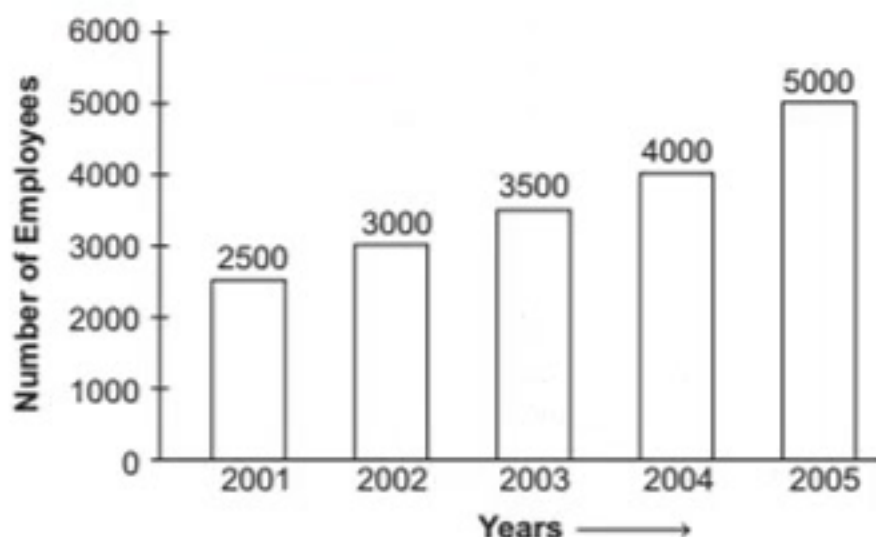
Number of sold bananas in July
= $7 \times 12 \times 5 = 420$ bananas

Hence, number of sold bananas
= $360 + 180 + 300 + 120 + 420 = 1380$ bananas

Bar Graph

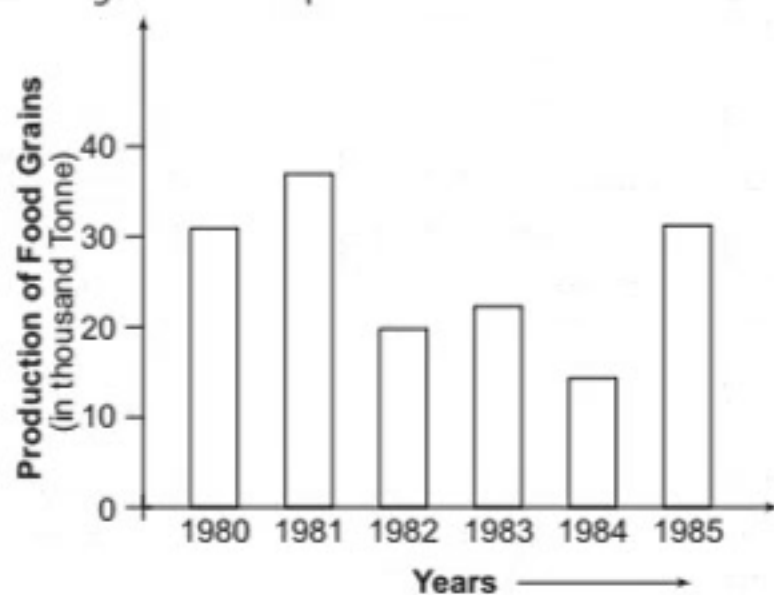
A bar graph is a pictorial representation of numerical data in the form of rectangles (or bars) of equal width and varying heights. Bars of uniform width can be drawn horizontally or vertically with equal spacing between them and the length of each bar represents the given number. Such method of representing data is called a **bar diagram** or a **bar graph**.

e.g., Number of Employees Over the Years 2001-2005 (in Thousands)



From the above graph it is clear that number of employees are increasing constantly by 500 and the number of employees in year 2002 are 3000 while as in year 2005 are 5000.

Example 2. The given graph here shows the production of food grains of a country in different years. Find the percentage increase in production from 1984 to 1985.



- (1) 50 (2) 100 (3) 75 (4) 150

Sol. (2) Production in 1984 = 15 (thousand Tonne)

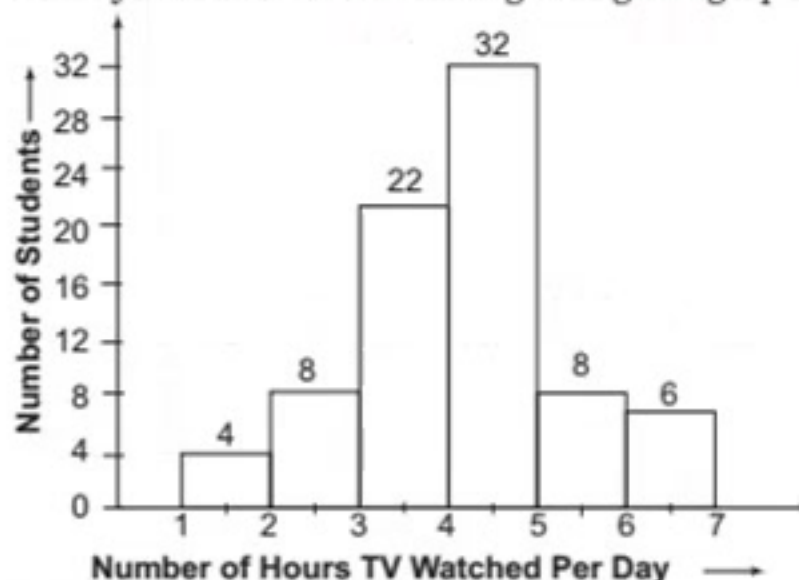
Production in 1985 = 30 (thousand Tonne)

$$\therefore \text{Percentage increase} = \frac{(30 - 15)}{15} \times 100 = 100\%$$

Histogram

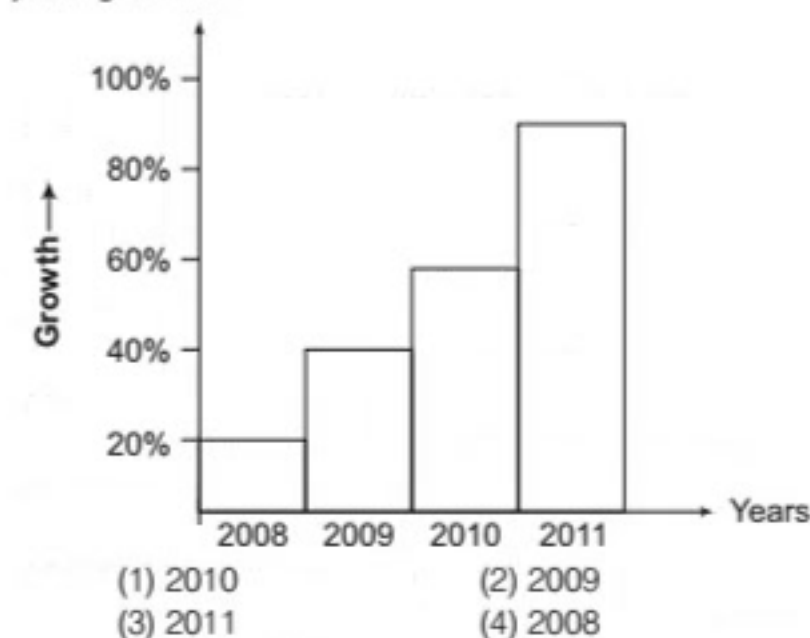
A histogram is a pictorial representation of numerical data in the form of rectangles (or bars) of equal width and varying height. Bars of uniform width can be drawn horizontally or vertically without space between them and the length of each bar represents the given number. Such method of representing data is called a histogram.

e.g., The number of hours for which students of a particular class watched television during holidays has been shown through the given graph.



From the above graph it is clear that number of maximum students (32) watching TV in hours 4 to 5, while minimum students (4) watching TV in hours 1 to 2.

Example 3. From the given figure determine that in which year right back from this year India had to face the maximum growth in price comparing both the years growth?



- (1) 2010
(3) 2011

- (2) 2009
(4) 2008

Sol. (3) Percentage growth in year 2008 = 20%

Percentage growth in year 2009 = 40%

Percentage growth in year 2010 = 60%

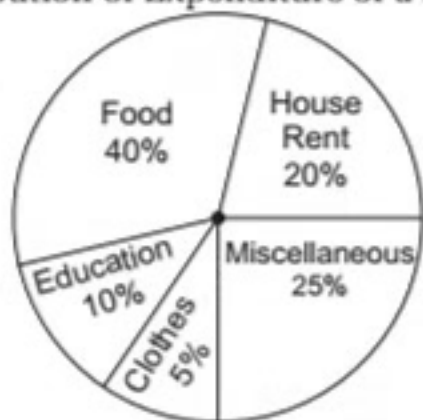
Percentage growth in year 2011 = 90%

Therefore, it is clear from the data that in year 2011 percentage growth in price is higher than the previous years.

Pie Chart (or Circle Graph)

A pie diagram is a pictorial representation of the numerical data by non-intersecting adjacent sectors of the circle such that area of each sector is proportional to the magnitude of the data represented by the sector.

e.g. Distribution of Expenditure of a Family



Directions (Examples 4 and 5) *Study the given information carefully and answer the question based on it.*

Adjoining pie chart gives the expenditure (in percentage) on various items and savings of a family during a month.



Example 4. Expenditure on which item is equal to the total savings of the family?

- (1) House rent
- (2) Education for children
- (3) Food
- (4) Others

Sol. (2) Expenditure on education of children is the same (i.e., 15%) as the savings of the family.

Example 5. If the monthly savings of the family is ₹ 3000, what is the monthly expenditure on clothes?

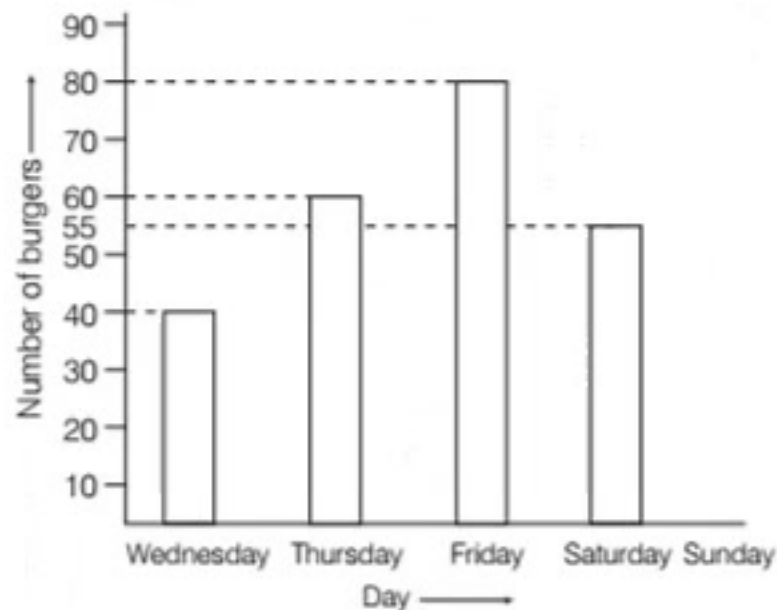
- (1) ₹ 1500
- (2) ₹ 3000
- (3) ₹ 2000
- (4) ₹ 1800

Sol. (3) \therefore 15% represents = ₹ 3000

Therefore, 10% represents = $\frac{3000}{15} \times 10$
= ₹ 2000

Entrance Corner



1. The following bar diagram shows the sale (number of burgers) of a burger saler during 5 days.



If total sale of burger was 320. Then number of burger sold on Sunday? [JNV 2018]

- (1) 85 (2) 80 (3) 75 (4) 90

2. Pictograms shows the number of plants sold through a nursery from Monday to Friday























Days	Sold Plants
Monday	 
Tuesday	   
Wednesday	    
Thursday	  
Friday	    


 = 20 plants

Find the number of plants sold from Monday to Friday. [JNV 2018]

- (1) 19 (2) 190 (3) 250 (4) 380

3. Read the given information carefully and answer the question.

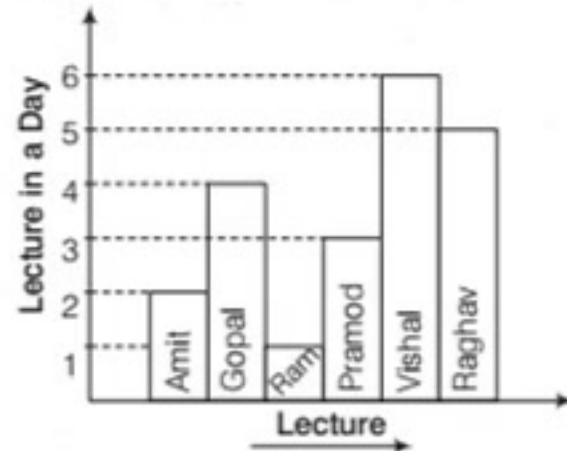
Months	Sold Bananas
March	     
April	  
May	    
June	 
July	     

[Here,  = 5 dozen]

What is the number of sold bananas during the given months? [JNV 2017]

- (1) 1180 (2) 1380
(3) 1250 (4) 1450

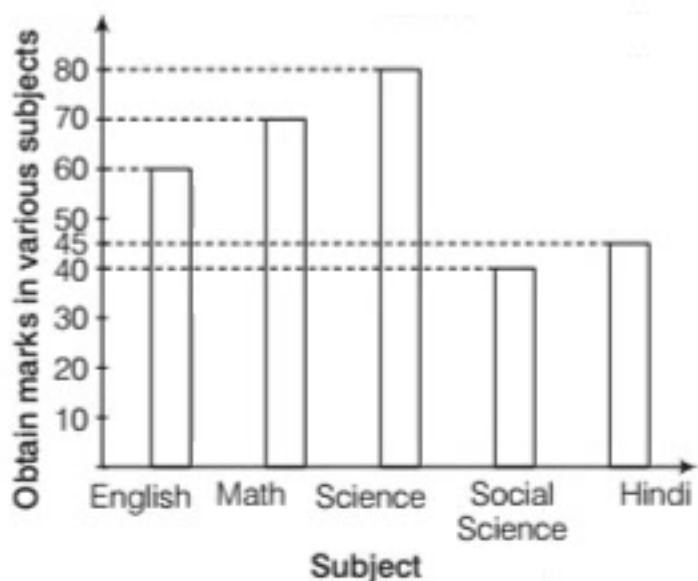
4. Study the graph and answer the questions



What is the difference between the lecture taken by Amit and Raghav to the Gopal and Pramod during a week? [JNV 2017]

- (1) 42 (2) 7
(3) 35 (4) 0

5. Study the bar chart given below which shows Shyam's marks in S_1 examination in different subjects out of 100 marks each.



The percentage of Shyam's marks in Science is [JNV 2016]

- (1) 50
(2) 80
(3) 70
(4) 60

6. Following graph represents the number of shoes sold by a shopkeeper in last 4 months.

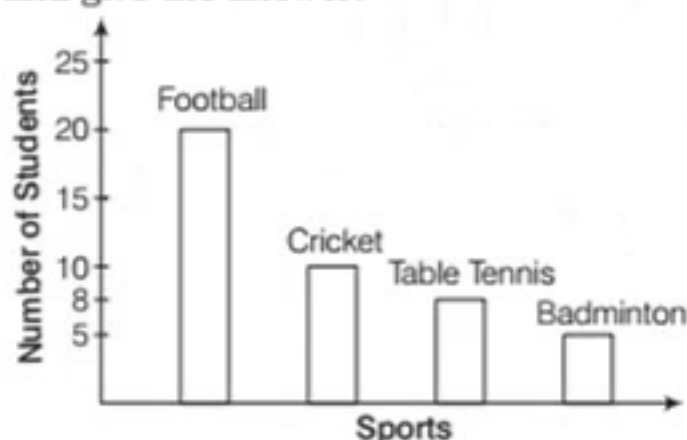
September	  
October	   
November	  
December	

 = 112 pair shoes

What was the number of shoes sold by the shopkeeper in 4 months? [JNV 2016]

- (1) 1130 (2) 1120
(3) 1242 (4) 1232

7. Following bar chart represents the various sports play by students. Study the chart and give the answer.



















How many students play table tennis?

[JNV 2015]

- (1) 10 (2) 8
(3) 18 (4) 20

8. Following graph represents the various transport medium used by the students.
















Transport	Number of students
Bicycle	 
Scooter	  
Car	   
School van	     

Here,  = 50 students

How many percentage of students use school van? [JNV 2015]

- (1) 6 (2) 16
(3) 40 (4) 36

Direction (Q. No. 9) Following graph represents the number of carton filled with oranges in 4 days of a week sold by a vendor.

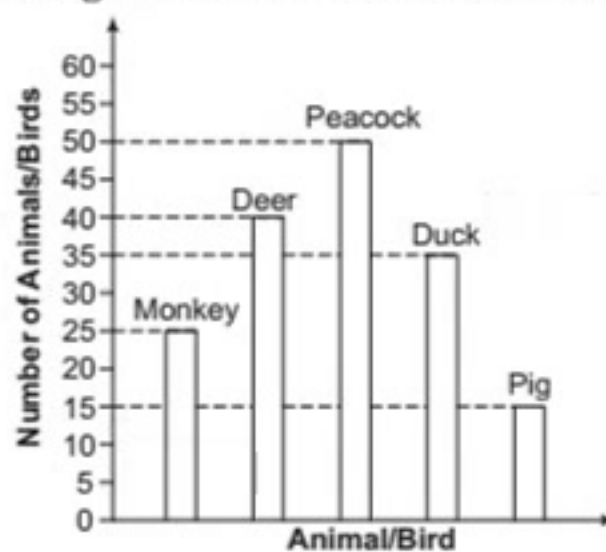
Day	Number of Oranges Sold
Monday	 
Wednesday	  
Friday	     
Sunday	   

● Represents 15 oranges

9. If vendor still remain with 25 oranges in a carton, then what was the number of oranges at the beginning? [JNV 2014]

- (1) 200 (2) 225 (3) 250 (4) 300

10. A class visit a park and they saw some animals and birds. They plot a graph by placing the number of animals and birds.



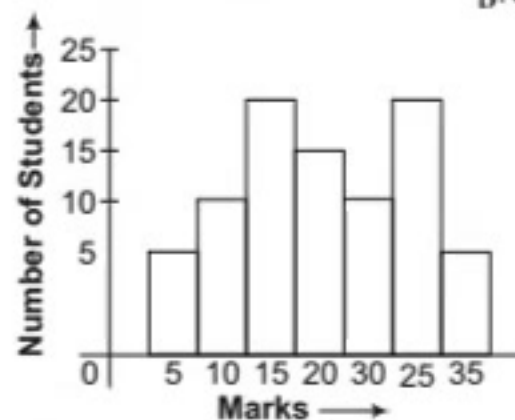
Sum of number of Deer and Monkey is more than the number of Peacock is

[JNV 2014]

- (1) 12 (2) 10 (3) 15 (4) 9

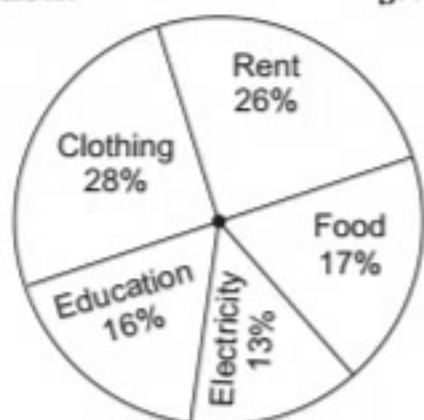
11. Study the diagram and find the number of students obtain less than 20 marks.

[JNV 2013]






























- (1) 35 (2) 45 (3) 65 (4) 85

12. In the following pie chart if the expenditure on food is ₹ 6800 per month. Find out the expenditure on education. [JNV 2012]



- (1) ₹ 5000
(2) ₹ 6400
(3) ₹ 6000
(4) ₹ 6260

13. In a college library different subjectwise book pictures detail are given below.

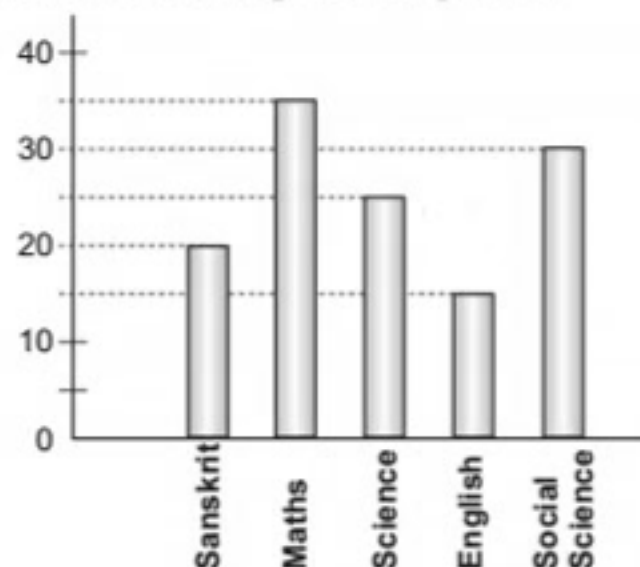
Subject	
Mathematics	     
Science	      
Hindi	   
English	       
History	 

 = 10 Books

How many subjects have books more than 50? [JNV 2010]

- (1) 2 (2) 3
(3) 1 (4) 4

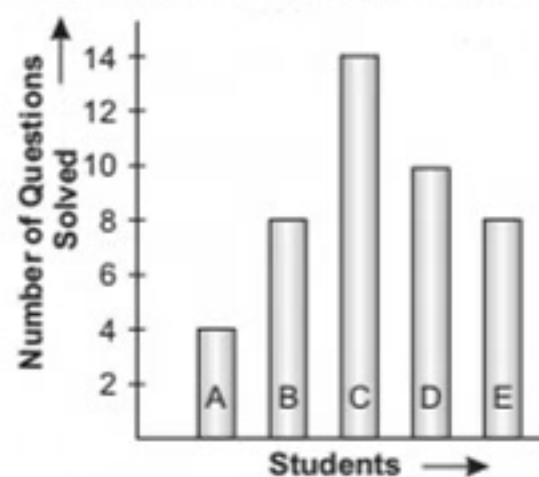
14. To study the graph say that, what per cent of the student in English has passed?



In different subjects, the number of passed students in a class of 40 students. [JNV 2007]

- (1) 36.5 (2) 37.5 (3) 36 (4) 37

15. From the graph calculate how many questions do C and D solve more than A, B and E? [JNV 2004]



- (1) 3 (2) 4 (3) 10 (4) 14

Answers

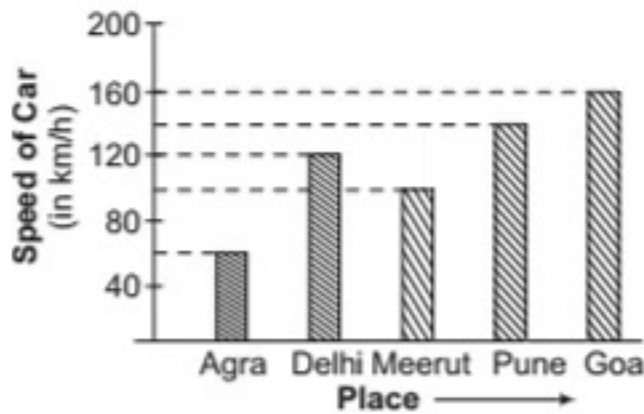
1. (1)	2. (4)	3. (2)	4. (4)	5. (2)	6. (4)	7. (2)	8. (3)	9. (3)	10. (3)
11. (2)	12. (2)	13. (2)	14. (2)	15. (2)					

Hints and Solutions

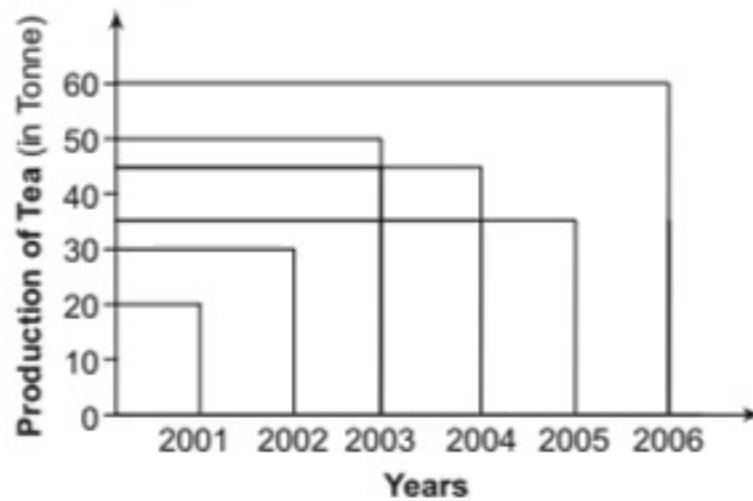
- Total sale of Burger = 320
 Burger sold on Wednesday = 40
 Burger sold on Thursday = 60
 Burger sold on Friday = 80
 Burger sold on Saturday = 55
 Now, burger sold on Sunday = Total sale – Sale on (Wed + Thu + Fri + Sat)
 $= 320 - (40 + 60 + 80 + 55)$
 $= 320 - 235 = 85$
- Number of plant sold from Monday to Friday
 $= 20 \times (2 + 4 + 5 + 3 + 5)$
 $= 20 \times 19$
 $= 380$
- Number of sold bananas in March
 $= 6 \times 12 \times 5 = 360$ bananas
 Number of sold bananas in April
 $= 3 \times 12 \times 5 = 180$ bananas
 Number of sold bananas in May
 $= 5 \times 12 \times 5 = 300$ bananas
 Number of sold bananas in June
 $= 2 \times 12 \times 5 = 120$ bananas
 Number of sold bananas in July
 $= 7 \times 12 \times 5 = 420$ bananas
 Hence, number of sold bananas
 $= 360 + 180 + 300 + 120 + 420$
 $= 1380$ bananas
- Lectures taken by Amit in a day = 2
 Lectures taken by Raghav in a day = 5
 Total number of Lectures by Amit and Raghav
 $= 2 + 5 = 7$
 Total number of Lectures by Amit and Raghav in a week = $7 \times 6 = 42$
 Lectures taken by Gopal in a day = 4
 Lectures taken by Pramod in a day = 3
 Total number of Lectures by Gopal and Pramod
 $= 4 + 3 = 7$
 Total number of Lectures by Gopal and Pramod in a week = $7 \times 6 = 42$
 \therefore Required difference = $42 - 42 = 0$
- It is clear from the bar chart Shyam gets 80 marks in Science.
 \therefore Required per cent marks
 $= \frac{\text{Obtained marks in Science}}{\text{Total marks in Science}} \times 100$
- $= \frac{80}{100} \times 100 = 80\%$
- Shoes sold in September month = $3 \times 112 = 336$
 Shoes sold in October month = $4 \times 112 = 448$
 Shoes sold in November month = $3 \times 112 = 336$
 Shoes sold in December month = $1 \times 112 = 112$
 \therefore Total number of shoes sold by the shopkeeper in 4 months
 $= 336 + 448 + 336 + 112 = 1232$
- From the given bar chart we clearly say that 8 students play table tennis.
- Total number of students
 $= 2 \times 50 + 3 \times 50 + 4 \times 50 + 6 \times 50$
 $= 100 + 150 + 200 + 300 = 750$
 Number of students use school van
 $= 6 \times 50 = 300$
 \therefore Required percentage = $\frac{300}{750} \times 100 = 40\%$
- Given one ● = 15 oranges
 Number of oranges sold in four days = 15 (●)
 Total oranges sold = $15 \times 15 = 225$
 Total oranges at beginning = $225 + 25 = 250$
- Sum of number of Deer and Monkey = $40 + 25 = 65$
 Number of Peacock = 50
 Required difference = $65 - 50 = 15$
- Number of students obtain less than 20 marks
 $= 5 + 10 + 15 + 10 + 5 = 45$
- $\therefore 17\% = ₹ 6800$
 $\therefore 1\% = \frac{6800}{17} = ₹ 400$
 \therefore Expenditure on education (16%)
 $= ₹ 400 \times 16$
 $= ₹ 6400$
- There are three subjects having books more than 50 i.e., Mathematics, Science and English.
- \therefore Required passed students in English
 $= \frac{15 \times 100}{40} = 375\%$
- Number of questions solved by C = 14
 Number of questions solved by D = 10
 Total = 24
 Number of questions solved by A, B and E
 $= 4 + 8 + 8 = 20$
 Required difference = $24 - 20 = 4$

Practice Exercise

Directions (Q. Nos. 1 and 2) *Study the graph carefully and answer the questions given below.*



- What is the difference between the speed of car at places Delhi and Goa?
 (1) 30 km/h (2) 35 km/h
 (3) 40 km/h (4) 38 km/h
- The sum of speed of car at places Agra and Meerut is equal to the speed at which city?
 (1) Delhi (2) Pune (3) Meerut (4) Goa
- Study the graph carefully and answer the question given below.



In which year the production of tea was equal to the production of year 2001 and 2002?

- (1) 2004 (2) 2003
- (3) 2005 (4) 2006

- A shopkeeper represents the data of his sales during the given months.

Months	Sales
January	
February	
March	
April	
May	

[Here,  = 3 dozen]

If cost of one dozen articles is ₹ 150, then compute the total sale (in ₹) for the months of February and April.

- (1) 2700 (2) 2800
 - (3) 2750 (4) 2650
- A typist types pages according to given graph. Study the graph carefully and answer the question.

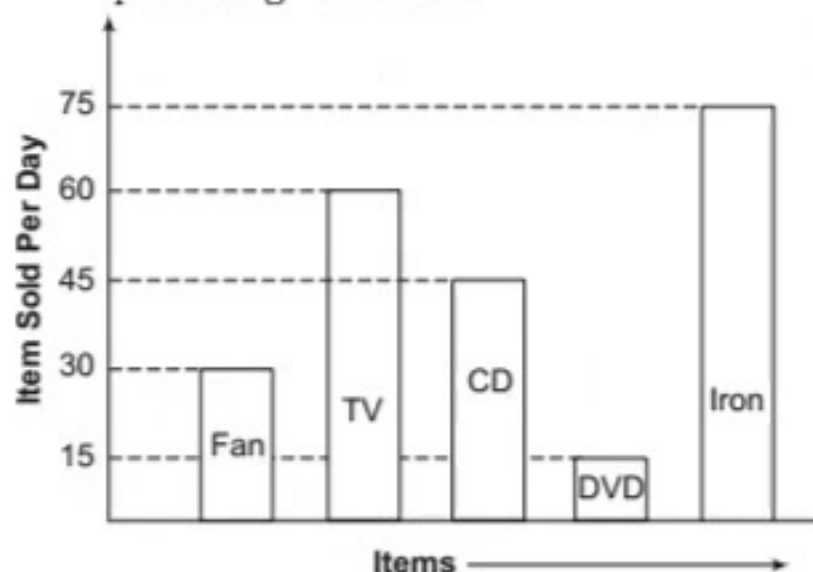
Days	Pages
Monday	●●●
Tuesday	●●●●
Wednesday	●●
Thursday	●●●●●
Friday	●●●
Saturday	●●●●●●
Sunday	●

[Here,  = 10 pages]

What is the average number of pages typed by the typist during the day Monday, Thursday and Sunday?

- (1) 35 pages (2) 30 pages
- (3) 40 pages (4) 25 pages

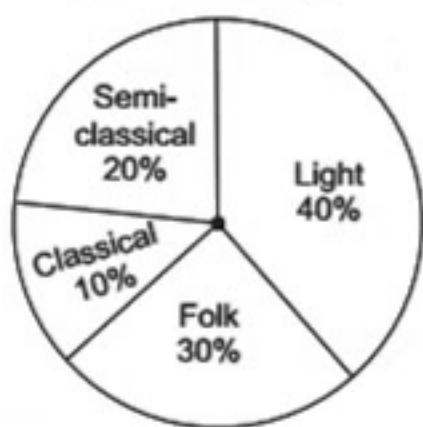
6. Study the graph carefully and answer the question given below.



Ramdas sold the item during a day according to above graph compute the sale of July month on the basis of given informations.

(1) 6925 (2) 6780 (3) 6980 (4) 6975

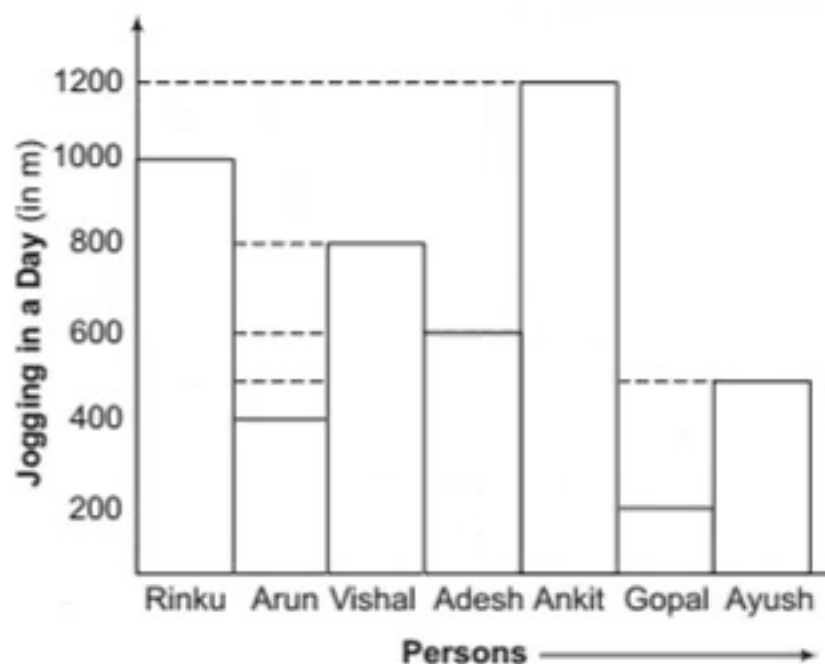
7. A Survey was made to find the types of music that a certain group of young people liked in a city. Following pie chart. Show the finding of this Survey.



Which type of music is liked by the maximum number of people

- (1) Classical (2) Semi-classical
(3) Folk (4) Light

Directions (Q.Nos. 8 and 9) Study the graph carefully and answer the questions given below.



8. How many kilometers does Ayush jog in 15 days?

- (1) 7 (2) 8
(3) 6.5 (4) 7.5

9. How many meters do Arun and Adesh jog less than that of Vishal and Rinku jog?

- (1) 700 (2) 75
(3) 820 (4) 800

Answers

1. (3)	2. (4)	3. (3)	4. (1)	5. (2)	6. (4)	7. (4)	8. (4)	9. (4)
--------	--------	--------	--------	--------	--------	--------	--------	--------

Hints and Solutions

- Speed of car at Delhi = 120 km/h
Speed of car at Goa = 160 km/h
 \therefore Required difference = $160 - 120 = 40$ km/h
- Speed of car at Agra = 60 km/h
Speed of car at Meerut = 100 km/h
Sum of speed = $60 + 100 = 160$ km/h
Clearly, sum of speed is equal to the speed at Goa city ($160 = 160$).
- Production of tea in year 2001 = 20 tonne
Production of tea in year 2002 = 30 tonne
Total production = 50 tonne
Clearly, production of year 2001 and 2002 is equal to the production of year 2003 ($50 = 50$).
- Sale of articles in February = $4 \times 3 = 12$ dozen
Sale of February in rupees = $12 \times 150 = ₹1800$
Sale of articles in April = $2 \times 3 = 6$ dozen
Sale of April in rupees = $6 \times 150 = ₹900$
Total sale of February and April = $1800 + 900 = ₹2700$
- Pages typed by the typist on Monday = $3 \times 10 = 30$ pages
Pages typed by typist on Thursday = $5 \times 10 = 50$ pages
Pages typed by typist on Sunday = $1 \times 10 = 10$ pages
Total number of typed pages = $30 + 50 + 10 = 90$ pages

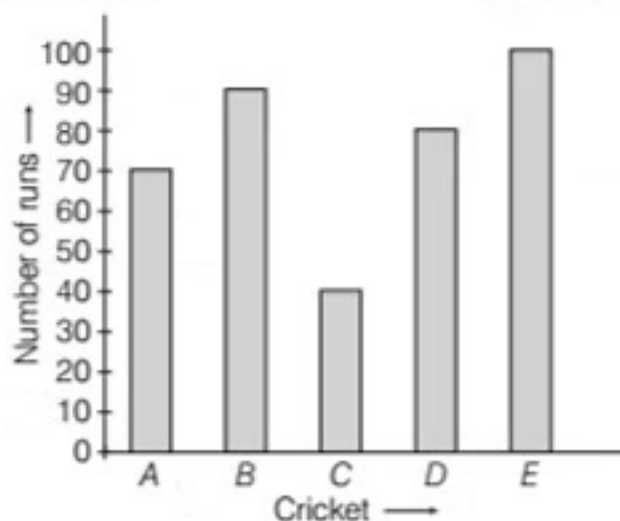
$$\therefore \text{Required average} = \frac{\text{Number of typed pages}}{\text{Number of days}} = \frac{90}{3} = 30 \text{ pages}$$

- Sale of a day by Ramdas
= Sale of Fan + TV + CD + DVD + Iron
= $30 + 60 + 45 + 15 + 75 = 225$ items
 \therefore Number of days in month July = 31 days
 \therefore Required sale = $225 \times 31 = 6975$ items
- Light music is liked by the maximum number of peoples 40%.
- Jogging by Ayush in a day = 500 m
Jogging by Ayush in 15 days = $500 \times 15 = 7500$ m

Hence, jogging by Ayush = $\frac{7500}{1000} = 7.5$ km
[$\because 1000 \text{ m} = 1 \text{ km}$]
- Jogging by Arun in a day = 400 m
Jogging by Adesh in a day = 600 m
Total jogging by both = 1000 m
Jogging by Vishal in a day = 800 m
Jogging by Rinku in a day = 1000 m
Total jogging by both = 1800 m
 \therefore Required difference = $1800 - 1000 = 800$ m

Self Practice

1. The following graph shows the runs scored by some cricketers in a selection test. Study the graph carefully and answer the questions.



If 50 is the qualifying run, who failed the test?

- (1) A (2) B (3) C (4) D
2. The number of scouts in a school is depicted by the following pictograph.

Class	Number of scouts	😊 = 10 scouts
VI	😊😊😊😊	
VII	😊😊	
VIII	😊😊😊😊😊😊	
IX	😊😊😊	
X	😊	

What is the total number of scouts in the classes VI to X?

- (1) 150 (2) 160 (3) 140 (4) 130
3. Pie chart shown below gives the expenditure (in percentage) on various items and savings of a family during a month.



On which item, the expenditure was maximum?

- (1) Food (2) Education (3) Others (4) Transport

Answers

1. (3) 2. (2) 3. (1)