



Maths by Ajay Rana

Data Interpretation

Data Interpretation :-

Pie chart (वृत्त आरेख)

Pie chart :-

Data represent in circle.

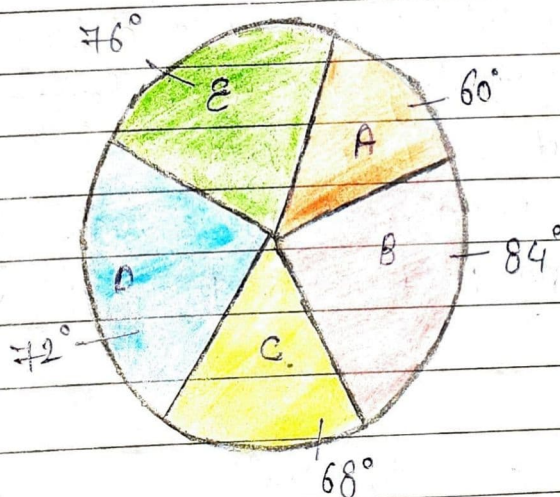
central Angle = θ

100% $\rightarrow 360^\circ$

1% $\rightarrow 3.6^\circ$

Question:- The given pie-chart shows the breakup of total marks obtained by a student in five subjects A, B, C, D and E. The maximum marks in each subjects is 150 and he obtained a total of 600 marks.

(निम्नलिखित वृत्त आरेख में एक विद्यार्थी द्वारा पांच विषयों: A, B, C, D and E में प्राप्त कुल अंकों का विभाजन दिया गया है। प्रत्येक विषय में अधिकतम अंक 150 हैं तथा उसने कुल 600 अंक प्राप्त किए हैं।)



Question:- What is the difference between the marks obtained by the student in subject B and D?

(विद्यार्थी के द्वारा B तथा D विषयों में प्राप्त अंकों में कितना अंतर है।)

Solution:-

$$\text{Total marks} = 600$$

$$\text{maximum marks} = 150 \times 5 \\ = 750$$

$$360^\circ \text{ ————— } 600 \text{ marks.}$$

$$\text{difference between (B and D)} = (84^\circ - 72^\circ)$$

$$360^\circ$$

$$600$$

$$12^\circ$$

$$20 \text{ marks. — Ans.}$$

$$1^\circ \text{ ————— } 10 \\ 6$$

Question:- (b) The total marks obtained by the students C and E is approximately how much percent more what he obtained in A and D together?

(C तथा E विषयों में विद्यार्थी के द्वारा प्राप्त कुल अंक उसके द्वारा A तथा D में प्राप्त कुल अंकों से कितनी प्रतिशत अधिक हैं।)

Solution:-

$$\text{C and E} = 88^\circ + 76^\circ \\ = 144^\circ$$

$$\text{A and D} = 80^\circ + 72^\circ \\ 132^\circ$$

$$(A+D) : (C+E)$$

$$132^\circ : 144^\circ$$

$$11 : 12$$

$$\frac{1}{11} \times 100 = 9.09\% \text{ Ans.}$$

Question-(c) In how many subject did the student obtain more than his average marks.

(विद्यार्थी को कितने विषय/विषयों में अपने औसत अंक से अधिक अंक प्राप्त हुए?)

Solution:- Average marks = $\frac{360^\circ}{5} = 72^\circ$

in 2 subjects - B and E Ans.

Question:-2

The given pie chart shows the break-up of total number of the employees of a company working in different offices (A, B, C, D and E).

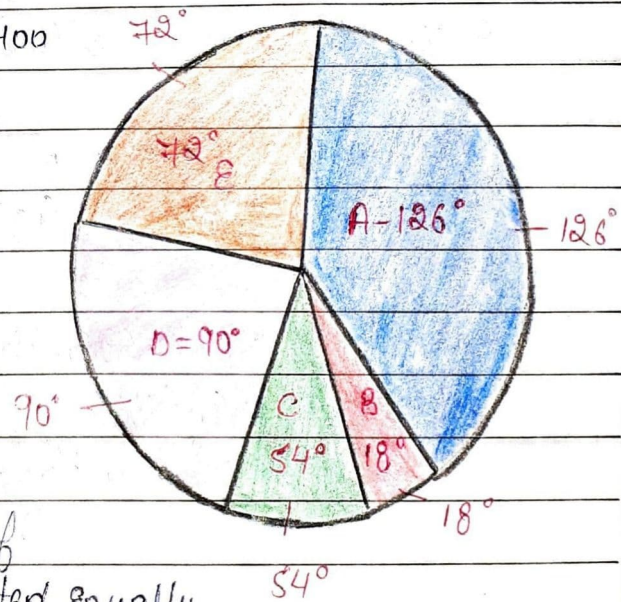
Total number of employees = 2400

(दिए गए पाई चार्ट में विभिन्न कार्यालयों

(A, B, C, D तथा E) में काम करने वाली एक कंपनी के कर्मचारियों की कुल संख्याओं

के विभाजन को दर्शाता है।

कर्मचारियों की कुल संख्या = 2400.



Question:-(A) If 40% of the number of

employees in office A are shifted equally to office B and E, then what is the difference between the number of employees in B and that in C?

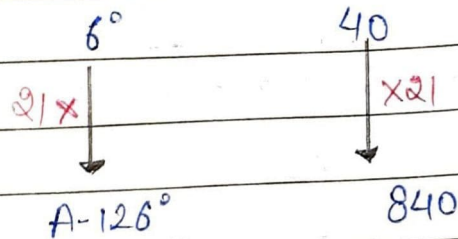


(याद कार्यालय में के कर्मचारियों की संख्या का 40% समान रूप से कार्यालय B तथा C में स्थानांतरित किया जाता है, तो B तथा C में कर्मचारियों की संख्या में अंतर क्या है?)

Solution:-

$$36^\circ \text{ ————— } 2400$$

$$36^\circ \text{ ————— } 240$$



$$840 \times 40\%$$

$$336 \text{ Employee.}$$

$$\text{Extra Employee in office B} = 840 \times 20\% = 168.$$

$$\text{difference C and B} \\ 54^\circ - (18^\circ + 168 \text{ Employee})$$

$$36^\circ - 168 \text{ Employee.}$$

$$240 - 168$$

$$(36^\circ = 240)$$

$$72 \text{ Employee } \underline{\text{Ans.}}$$

Question-(b) What is the number of offices in which the number of employees of a company is between 350 and 650?

(ऐसे कितने कार्यालय हैं जिनमें कंपनी के कर्मचारियों की संख्या 350 से 650 के बीच है?)

Solution:-

360° ————— 2400 Employee

6° ————— 40

36° ————— 240

18° ————— 120

54° ————— 360

72° ————— 480

108° ————— 720

3 office - (C-54, E-72, D-90) Ans.

Question:- (c) If the percentage of male employees in office C is 20% and that of female employees in E is 40%. then what is the ratio of the number of female employees in C to that of female employee in E?

(चाहे कार्यालय C में 'पुरुष कर्मचारियों' की संख्या 20% प्रतिशत है तथा कार्यालय E में 'महिला कर्मचारियों' की संख्या 40% है। तो कार्यालय C में महिला कर्मचारियों की संख्या तथा कार्यालय E में महिला कर्मचारियों के अनुपात का क्या है?)

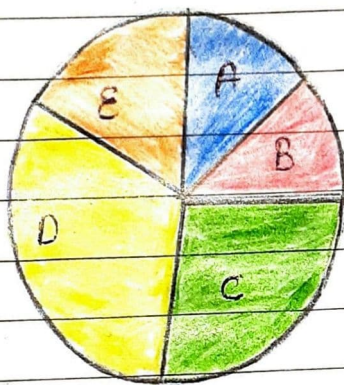
Solution:- female in office (C) = $54 \times 80\%$
female in office (E) = $72 \times 40\%$

Ratio $\frac{54^\circ \times 80\%}{72^\circ \times 40\%} = 3:2$ Ans.

Question:- The given pie chart shows that Quantity-wise sales distribution of five products (A, B, C, D, E) of a company in 2016.

(दिए गए पाई चार्ट में 2016 में एक कंपनी के पांच उत्पादों (A, B, C, D, E) की मात्रा-वार बिक्री वितरण को दर्शाता है।)

Quantity wise sales distribution of five products (A, B, C, D and E)



A - 30°

B - 35°

C - 120°

D - 100°

E - 55°

Question-(a) In 2016, if a total of 14616 units were sold, then the number of units of products D was:

(2016 में यदि कुल 14616 इकाइयाँ बेची गईं तो D उत्पादों की संख्या थी:

Solution:-

$$\frac{360^\circ}{1^\circ} = \frac{14616}{x}$$

Company D $\frac{100^\circ}{360^\circ} \times 14616$

= 4060 Ans.

Question:- If 320 units of product A were sold by the company, the how many units of products B and E together were sold by the company?

(यदि कंपनी द्वारा उत्पाद A की 320 इकाइयाँ की बेची गयी तो B और E उत्पादों की कितनी इकाइयाँ कंपनी द्वारा बेची गई ?)

Solution:- Company A 50° ——— 320 units
 1° ——— $\frac{320}{50} = 6.4$

Company (B+E) = $35^\circ + 55^\circ$
 90° 90×6.4
 576 Ans

Question:- If 1500 units of product D were sold in 2016 and the total number of units sold by the company in 2017 was 18% more than that sold in 2016, then the sold in 2016, then the total units sold by the company in 2017 is:

(यदि 2016 में उत्पाद D की 1500 इकाइयाँ बेची गई और 2017 में कंपनी द्वारा बेची गई इकाइयों की कुल संख्या 2016 से बेची गई तुलना में 18% अधिक थी, तो 2017 में कंपनी द्वारा बेची गई कुल इकाइयाँ हैं:-)

Solution:- Company D 100° ——— 1500 units
 1° ——— 15 units
 360° ——— 360×15
 5400 units.

Sales in 2017

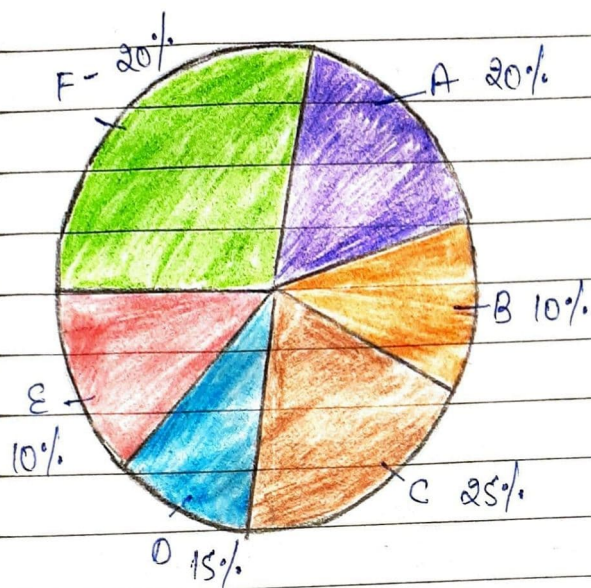
$5400 \times \frac{118}{100} = 6372$ Ans.

Question:- 4

The following pie chart shows the percentage distribution of total population of six cities, and the table shows the percentage of males among them:

(दिए गए पाई-चार्ट में छः शहरों की कुल संख्या का प्रतिशत वितरण है तथा दी गई तालिका पुरुष का प्रतिशत दर्शाती है-

Total Population of city F = 10000



city	% male
A	50%
B	30%
C	20%
D	40%
E	60%
F	50%

Question:- (a) what's the difference between the number of the female and the population of city B?

(शहर B में महिलाओं तथा पुरुषों की संख्या के बीच अंतर क्या है?)

Solution:- Total population of city F = 10000

city F = 20% 10000
1% 500

city (B) Number of male

10% x 30% male

Male Female

In city B

3%

7%

4%

1%

2000

Ans.

5000

Question (b) What is the total number of males in all six cities together?

(सभी शहरों को मिलाकर कुल पुरुषों की संख्या क्या है)

Solution:-

Total number of population City (F) = 10000

20% ——— 10000

City A	20% x 50%	10%
City B	10% x 30%	3%
City C	25% x 20%	5%
City D	15% x 40%	6%
City E	10% x 60%	6%
City F	20% x 50%	10%

Total male population

40% ——— 20000 Ans.

Question - (c) The total number of females in all six cities together is what percentage of the total population of all six cities together?

(सभी शहरों में कुल महिलाओं की संख्या, सभी शहरों की कुल जनसंख्या का कितना प्रतिशत है)

Solution:-

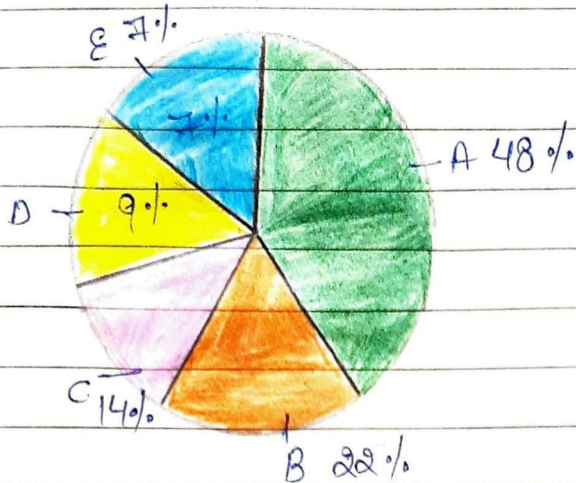
City A	20% x 50%	10%
City B	10% x 40%	4%
City C	25% x 30%	7.5%
City D	15% x 60%	9%
City E	10% x 40%	4%
City F	20% x 50%	10%

Total number of female

60% ——— 30000 Ans.



Question-5 The given pie-chart represents the distribution of the percentage of sale sales of a particular brand of car from five showrooms A, B, C, D and E during 2018. The total number of cars sold during that year from the five showrooms is 15000.



Question:- what is the central angle (nearest to 0.1 degree) of the sector corresponding to sales from the showroom c?

Solution:-

$$100\% \text{ ————— } 360^\circ$$

$$1\% \text{ ————— } 3.6^\circ$$

$$\begin{aligned} \text{showrooms c } 14\% & \text{ ————— } 14 \times 3.6^\circ \\ & = 50.4 \text{ Ans.} \end{aligned}$$

Question:- what is the total number of cars sold from the showroom B and D?

Solution:-

$$100\% \text{ ————— } 15000$$

$$1\% \text{ ————— } 150$$

$$\begin{aligned} \text{Car \% in showroom B and D} & \quad 22\% + 9\% \\ & \quad 31\% \end{aligned}$$

$$31\% \text{ ————— } 31 \times 150$$

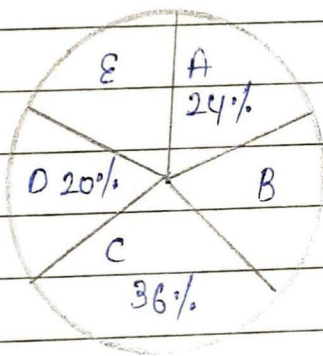
$$4650 \text{ Ans.}$$

Question:-6 The following pie-chart and table shows the percentage distribution of farmers in 5 states A, B, C, D and E of a country who claimed insurance due to drought in the Year 2017 and ratio of males of the number of farmers in states, respectively.

Study the pie-chart and the table carefully and answer the following Questions.

Note: Some data are missing in the pie-chart and table, if required in any Question, find the missing data first and then answer the Question.

Total number of farmers who claimed insurance in the Year 2017 = 264000.



States	Ratio of Male to Female in the farmers who claimed insurance in 2017
	Male : Female
A	5 : 3
B	4 : 1
C	
D	5 : —
E	3 : 2

Question:- The number of farmers who claimed insurance in state C exceeds the total number of farmers (who claimed insurance) in state E and state A together by 5280. What is the percentage of farmers who claimed insurance in state E?

Solution:- Total number of farmers 264000

State C - State (E+A)

$$36\% - (E+A) = \frac{5280}{264000} \times 100 = (2\%)$$

$$36\% - (34\%) = (36\% - 2\%)$$

$$E+A = 34\% \quad (\text{WN:-1})$$

$$E+24\% = 34\%$$

$$E = 10\% \quad \underline{\text{Ans.}}$$

Working Note:-

$$(E+A) = \frac{5280}{264000} \times 100$$

$$= 2\%$$

$$36\% - (E+A) = 2\%$$

$$E+A = 34\% - (1)$$



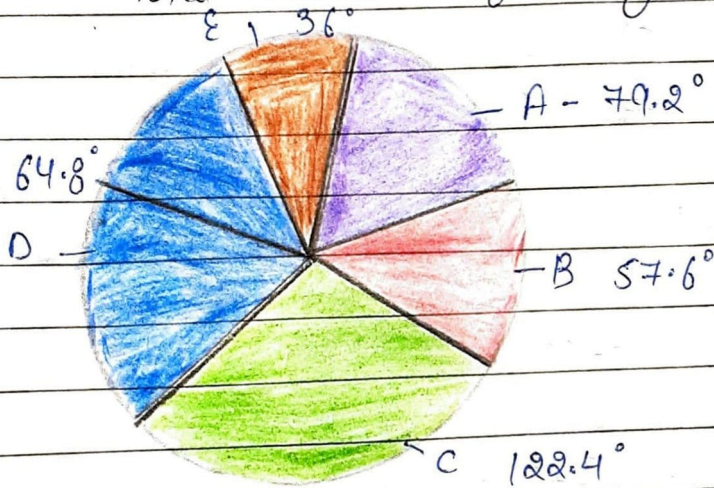
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Data Interpretation

Question:- Study the pie-chart and answer the question.

distribution (degree-wise) of the number of employees of a company working in 5 departments A, B, C, D and E.

Total number of employees = 3200



Question:- The number of employees working in department C is what percentage more than the total number of employees working in D and E?

Solution:-

$$\frac{(D+E)}{360^\circ} \times 3200$$

$$\frac{100.8^\circ}{360^\circ} \times 3200$$

$$89.6$$

$$= \frac{122.4^\circ}{100.8^\circ} \times 100$$

21.4% Ans.

Question:- If the total number of employees working in department A and B exceeds the number of employees in department C by μ , then μ lies between:

Solution:-

$$\begin{array}{ccc} (A+B) & & (C) \\ 136.8^\circ & & 122.4^\circ \\ & \text{---} & \\ & 14.4^\circ & \end{array}$$

$$360^\circ \text{ --- } 3200$$

$$360^\circ$$

$$3200^\circ$$

$$\times 0.4$$

$$\times 0.4$$

$$14.4^\circ$$

$$128 \text{ Ans.}$$

(given)

$$120 \text{ and } 140 \text{ Ans.}$$

Question:- If the ratio of male employees and female employees working in department D is 4:5 and that in department E is 9:11, then what is the ratio of the total male employees in D and E to the number of employee in B?

Solution:-

Male in

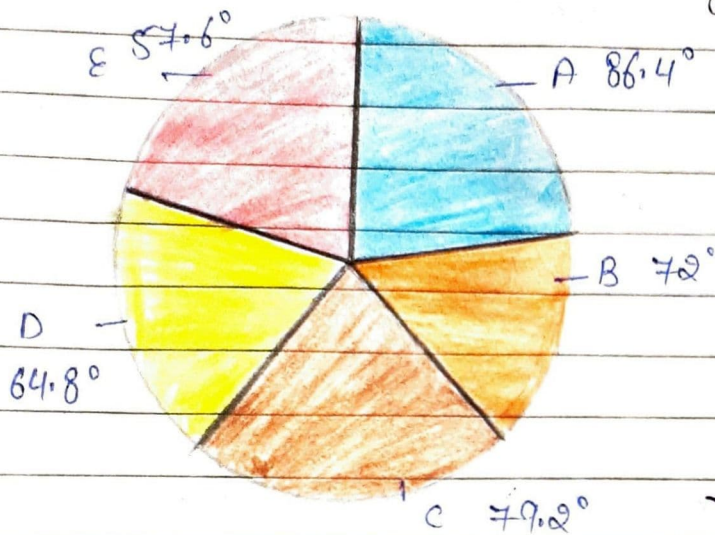
$$\frac{D+E}{B}$$

$$\frac{64.8^\circ \times \frac{4}{9} + 36^\circ \times \frac{9}{20}}{57.6^\circ}$$

$$57.6^\circ$$

$$= \frac{28.8 + 16.2}{57.6} = \frac{450}{576} = 25:32 \text{ Ans.}$$

Question:- 8 Study the given pie chart and answer the question
Break-up (degree wise) of the number of students in five
School (A, B, C, D, and E) in a city.



Total numbers of student = 6200

Question:- If the ratio of the number of boys to that of girls in
school B is 7:6 and the ratio of the number of boys to that
of girls in school D is 4:5, then what is the ratio of the
number of boys in B to that of girls in D?

Solution:- School B - Boy : Girl

7 : 6

School D -

4 : 5

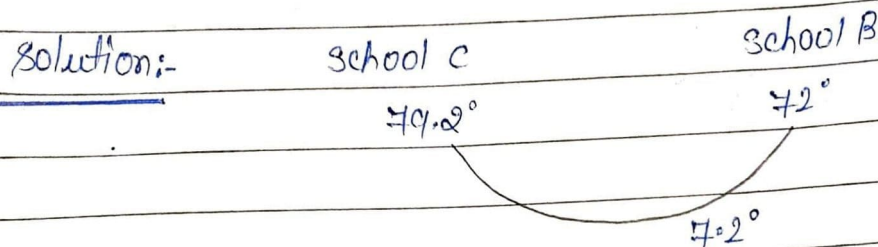
$$\frac{72^\circ \times 7}{13}$$

$$= \frac{72^\circ \times 7 \times 9}{13 \times 64.8^\circ \times 5} = \frac{14}{13}$$

$$\frac{64.8^\circ \times 5}{9}$$

14:13 Ans.

Question:- The number of students in school C is what percentage more than the number of students in school B?

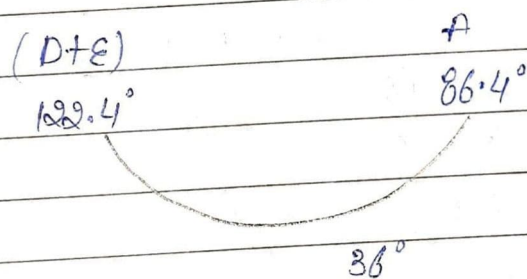


$$\frac{7.2^\circ}{72^\circ} \times 100$$

$$= 10\% \text{ Ans.}$$

Question:- If the total number of students in schools D and E exceeds the number of students in school A by x , then x lies between:

Solution:- 360° _____ 5200

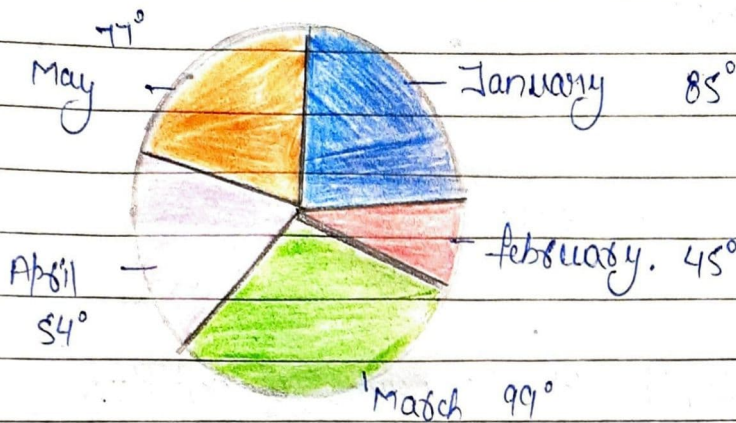


36° _____ $520.$

500 and 525 Ans.

Question-9 Study the pie-chart and answer the question.
distribution (degree-wise) of the number of computers sold by a shopkeeper during five months.

Total number of Computers Sold = 5400



Question:- If the difference between the number of computers sold in March and the number of computers sold in January is x , then x lies between:

Solution:-

March	January
99°	85°
$\text{Difference} = 99^\circ - 85^\circ = 14^\circ$	

360°	5400
36°	540
1°	540
	<u>36</u>
14°	$\frac{540 \times 14}{36}$
	= 210

200 and 250 Ans.

Question:- The total number of computers sold in February and April is what percentage more than the number of computers sold in May?

Solution:- May : (February + April)

$$77^\circ : 99^\circ$$

$$\frac{77}{99} = \frac{7}{9}$$

$$\frac{2}{7} \times 100 = 28.6 \text{ Ans.}$$

Question:- The number of months, in which the number of computers sold was above 20% of the total numbers of computers sold in 5 months was:

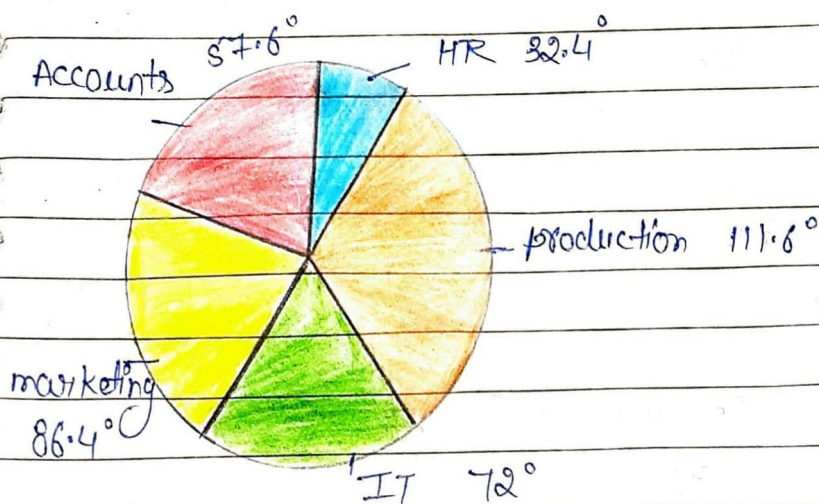
Solution:-

$$360^\circ \times 20\%$$

$$72^\circ$$

3 months - January, March, May.

Question:-10 Study the pie-chart and answer the Question:
distribution (degree wise) of the number of Employee of a
company working in five departments.



Total number of Employee = 1400

Question:- The total number of employees of the company
working in production and IT department exceeds the
total number of employees working in the marketing and Accounts
departments by _____.

Solution:-

production and IT =	183.6°
Marketing and account =	144.0°
	<u>39.6°</u>
360°	1400

36°	140
x/1	x/1

39.6°	154 Ans.
(given)	

Question:- If 80% of the numbers of employees working in the IT department and 40% of the number of employees working in both the HR and accounts department are females, then total number of female employees working in these three departments is —

Solution:-

$$360^\circ \text{ ————— } 1400$$

$$36^\circ \text{ ————— } 140$$

$$\begin{aligned} \text{Female in IT} &= 72^\circ \times 80\% \\ &= 57.6^\circ \end{aligned}$$

$$\begin{aligned} \text{Female in HR and Accounts} &= 90^\circ \times 40\% \\ &= 36^\circ \end{aligned}$$

$$\begin{aligned} &= 57.6^\circ + 36^\circ \\ &= 93.6^\circ \end{aligned}$$

$$1^\circ \text{ ————— } 140$$

$$\text{————— } 36$$

$$93.6^\circ \text{ ————— } 140 \times 93.6$$

$$\text{————— } 36$$

$$= 364 \text{ Ans.}$$

Question:- The number of employees of the company working in the marketing department is what percentage more than the number of employees working in the IT department?

Solution:-

Marketing
86.4

IT
72

$$14.4^\circ$$

$$\frac{14.4^\circ}{72} \times 100$$

$$= 20\% \text{ Ans.}$$

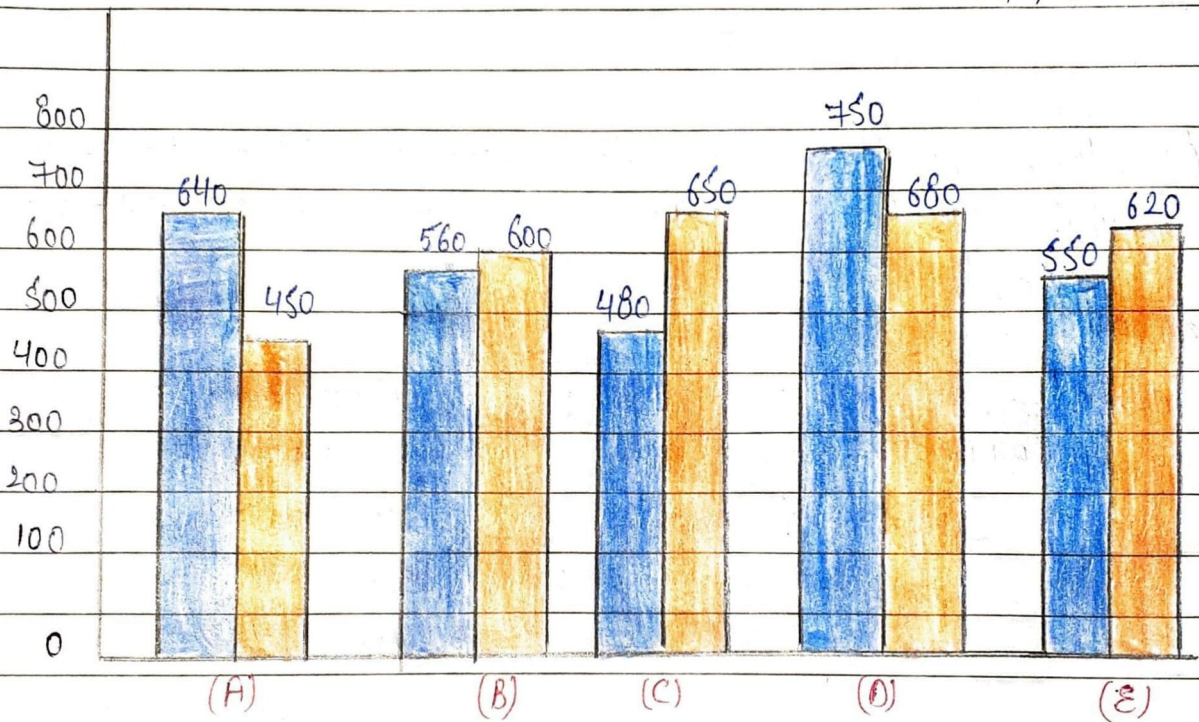
Bar Graph (ATR JTR)

Question:- Study the given graph and answer that follows.

Daily sales (in thousands) of newspaper T and O in five cities:

● Newspaper T

● Newspaper O



Question:- In which city the daily sales of newspaper T is 1.25 times the average daily sales of newspaper O in cities A, B, C, D and E?

Solution:- Average daily sale newspaper O city =

Assume mean = 600.

deviation = 600

$= 150 + 50 + 80 + 20$

Average = 600.
sale

$600 \times 1.25 \text{ times} = 720 + 30 = 750$

city D. Ans

Question:- what is the ratio of the total daily sales of newspaper T in cities A and C to the total daily sales of newspaper Q in cities B and D?

Solution:-

T Cities A and C :- $640 + 480 = 1120$

Q Cities B and D :- $600 + 680 = 1280$

~~1120~~ : ~~1280~~

7:8 Ans.

Question:- The total daily sales of newspaper T in cities B, D and E is what percentage less than that of newspaper Q in cities A, C, D and E?

Solution:-

Newspaper - P	:	Newspaper - Q
(B+D+E) cities	:	(A+C+D+E)

1860	:	2400
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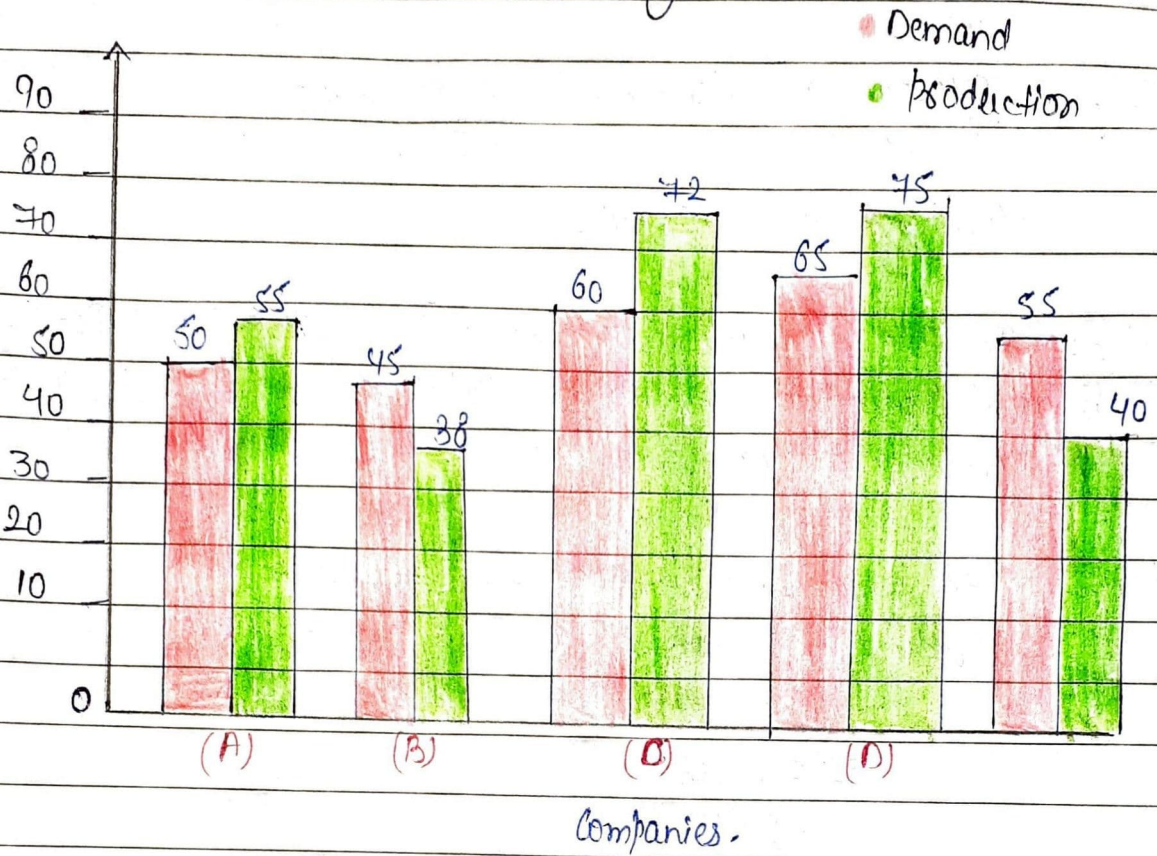
93	:	120
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31	:	40
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$\frac{9}{40} \times 100 = 22.5\%$ Ans.

Question:-2 study the following bar-graph :-

Demand & production of motor cycle of five companies in (2016)



Question:- The ratio of the total demand of motor cycles of companies A, C and E to the total production of motor cycles of B and D is:

Solution:-

Demand	:	Production
(A+C+E)		(B+D)
(50+60+55)		(38+72)
165	:	110

$$\frac{165}{110} = 3:2 \text{ Ans.}$$

Question:- The number of companies whose production of motorcycles is equal to or more than the average demand of motorcycles (per year) over five years is:

Solution:- Average of demand = $\frac{275}{5} = 55$

3 company - (A, C, and D)

Question:- The total production of motorcycles of companies C, D and E is what percent less than the total demand of motorcycles of all the companies during five years?

Solution:- Total demand = $(A+B+C+D+E) = 275$
production $(C+D+E) = 187$

$$\begin{array}{r} 275 : 187 \\ 25 : 17 \\ \hline 8 \end{array}$$

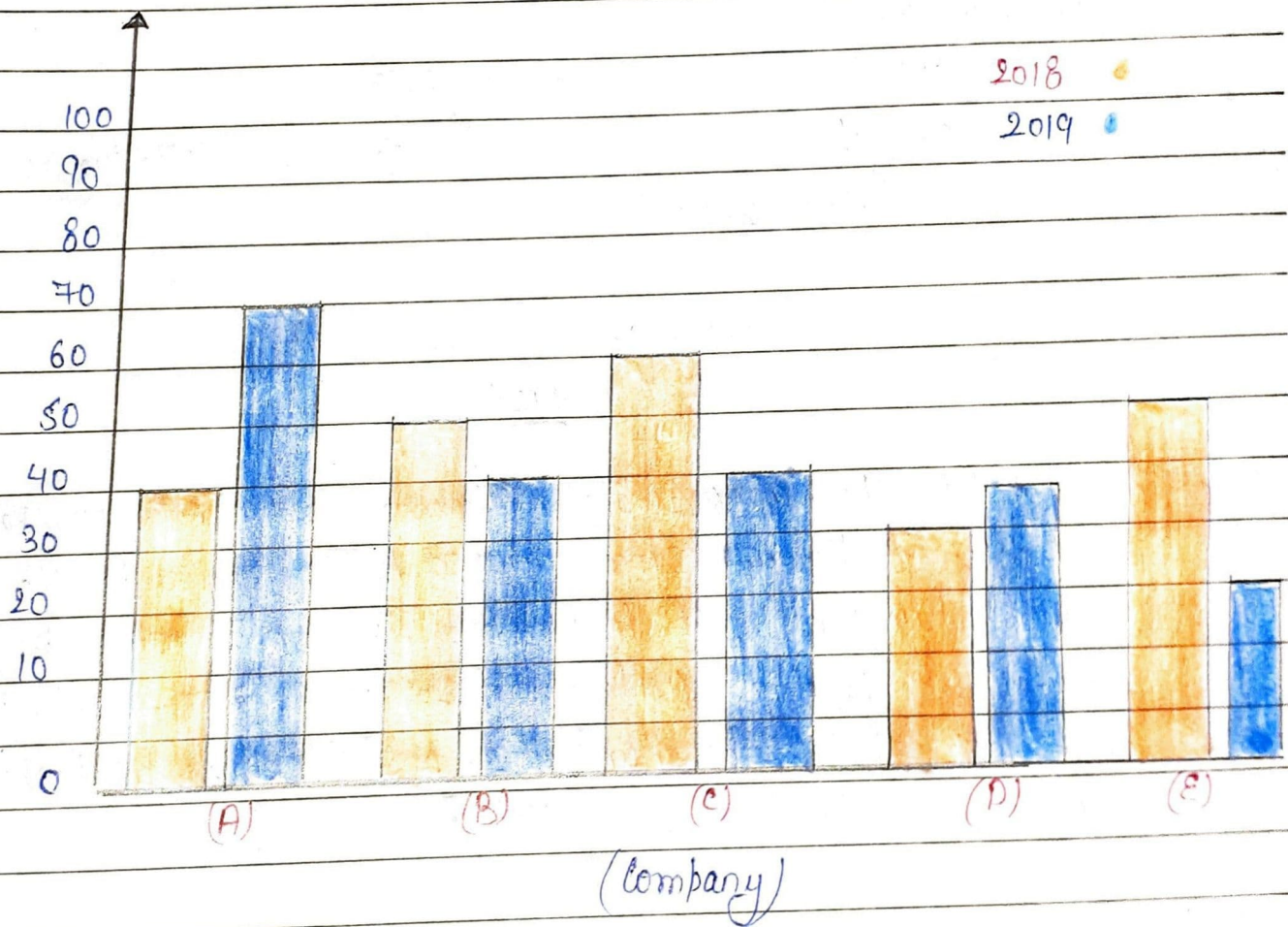
$$\frac{8}{25} \times 100 = 32\% \text{ Ans.}$$



Question:- 3 study the following bar graph carefully

The bar graph shows the percentage of non defective products manufactured by different companies in 2018 and 2019.

Note:- Total manufactured products = Non defective products + Defective products.





Maths by Ajay Rana

Data Interpretation

Question:- If the total number of products manufactured in 2018 was 20% ~~was~~ more than the total number of products manufactured in 2019 by company B, then find the ratio of the number defective products manufactured in 2018 to the number of defective products manufactured in 2019 by the same company?

Solution:- $20\% = \frac{1}{5}$

Company B -

2018

:

2019

$6 \times 50\%$

(defective product)

$5 \times 60\%$ - (defective product)

300 : 300

1 : 1 Ans.

Question:- What is the approximate difference between the number of defective products manufactured by company C in the given two years, if the number of non-defective products manufactured by that company in 2019 was 2500, which is 25% more than the number of non-defective products manufactured by the same company in 2018?

Solution:-

Company C defective product = 2500
(2019)

Non-defective. (2000)* 2500

+25%

$$\begin{array}{rcl}
 \text{2018} & & \text{2019} \\
 \frac{2000}{60\%} \times 40\% & & \frac{2500}{40\%} \times 60\% \\
 \\
 \frac{4000}{3} & & \frac{2500 \times 3}{2} \\
 1333 & \sim & 3750 \\
 & \text{---} & \\
 & 2417 \text{ Ans.} &
 \end{array}$$

Question:- The number of total products manufactured by company D in 2019 is what percent more or less than that of manufactured by company B in 2018, if the ratio of the number of non-defective products manufactured by company B in 2018 to the number of defective products manufactured by company D in 2019 is 10:3?

Solution:- Ratio of the number of non-defective product manufactured by company B in 2018.

$$\text{Total product} = \frac{10}{50} \times 100$$

$$\begin{array}{rcl}
 \text{Company (D)} & \text{3 unit} & \\
 \text{2019} & & \frac{3}{65} \times 100
 \end{array}$$

$$\frac{10 \times 100}{50} : \frac{3}{65} \times 100$$

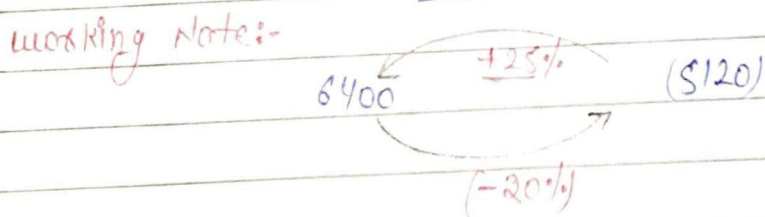
$$\frac{1}{5} : \frac{3}{65} = \frac{13}{10}$$

$$\frac{10}{13} \times 100 = \frac{1000}{13} \% \text{ less Ans.}$$

Question:- what is the number of total products manufactured by company A and E together in 2018, if the number of non-defective products manufactured by company A in 2018 is 6400, which is 25% more than the number of non-defective products manufactured by company E in 2018?

Solution:- (2018) Non defective product

<u>Company A</u>	+	<u>Company E</u>
$\frac{6400}{40\%} \times 100\%$	+	$\frac{5120^*}{50} \times 100$ (W.N:-1)
= 16000 + 10240		
= 26240 Ans.		



Question:- The number of total products manufactured by company C in 2018 is what percent of the total products manufactured by B in 2018, if the number of non-defective products manufactured by C in 2018 is 1800, which is 10% less than the defective products manufactured by B in 2018?

Solution:- company C (Non-defective product)

$\frac{1800}{60\%} \times 100 = 3000$	$1800 \xrightarrow{+10\%} 2000$
---------------------------------------	---------------------------------

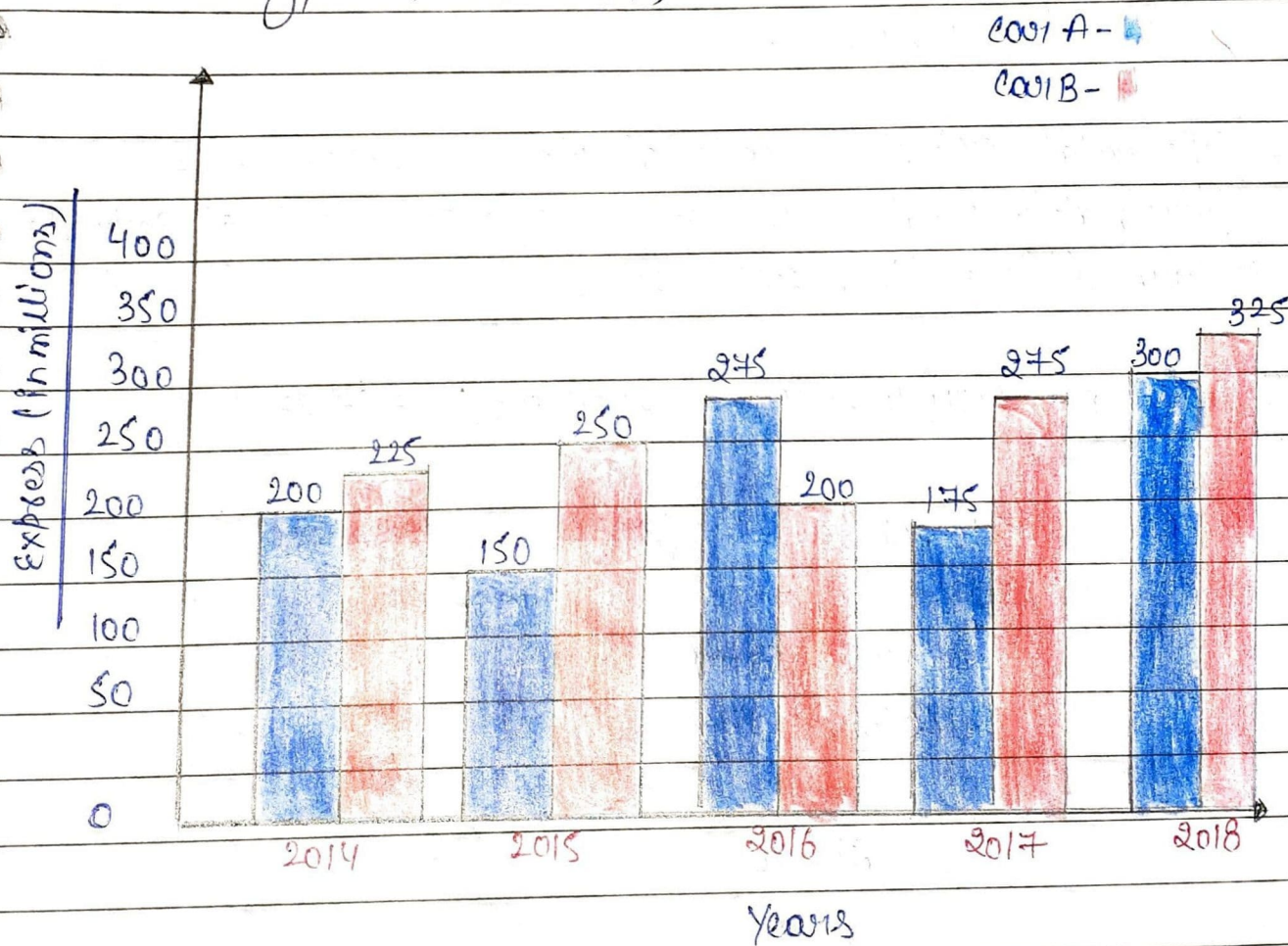
Company B = $\frac{2000}{50\%} \times 100\%$
= 4000

$$3000 : 4000$$

$$\frac{3}{4} \times 100$$

$$= 75\% \text{ Ans.}$$

Question:- The bar graph shows the exports of cars of Type A and Type B (in Rs millions)



Question:- what is the ratio of the total exports of cars of type A in 2014 and 2018 to the total exports of cars of type B in 2015 and 2016

Solution:- Car A : Car B
(Type A) (Type B)

$$\frac{500}{10:9} : \frac{450}{\text{Ans.}}$$

Question:- The total exports of cars of type A in 2014 to 2017 is approximately what percentage less than the total exports of cars of type B in 2015 to 2018?

Solution:- Car A - 2014 to 2017 = $(200 + 150 + 275 + 175)$
800

Car B - 2015 to 2018 = $(250 + 200 + 275 + 325)$
= 1050

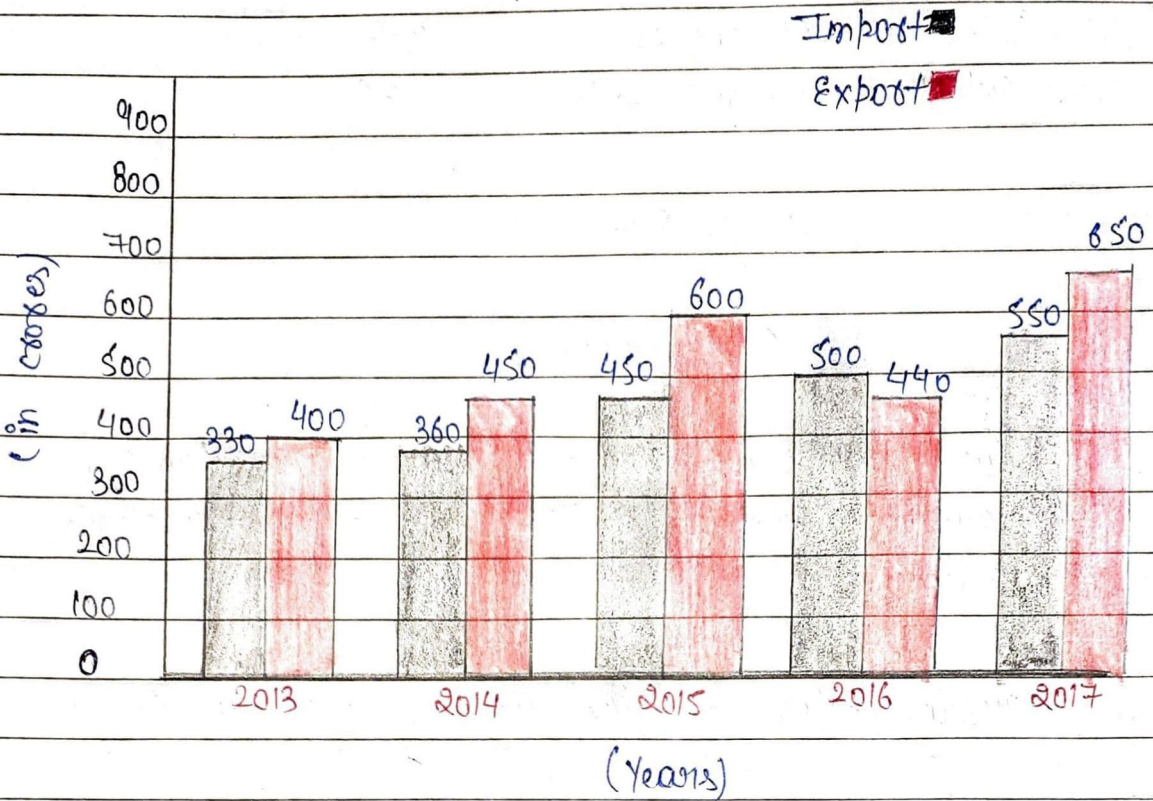
Car B : Car A

$\frac{1050}{800}$

$\frac{21}{5} : 16$

$\frac{5}{21} \times 100 = 23.8\%$ Ans.

Question:-5 The given bar graph shows the imports and exports (in ₹ crores) of steel by a country from 2013 to 2017.



Question:- The total imports of steel in 2014, 2016 and 2017 is what percent less than the total exports in 2013, 2015 and 2017.

Solution:-

Total imports in (2014, 2016, 2017)	1410
Total export in (2013, 2015, 2017)	1650

$$\frac{1650 - 1410}{1650} \times 100$$

$$= \frac{24}{165} \times 100$$

$$= 14.5\% \text{ Ans.}$$

Question:- what is the ratio of the total imports in 2015 and 2017 to the total export in 2013 and 2016?

Solution:-

Total import in 2015 and 2017	1000
Total Export in 2013 and 2016	840

$1000 : 840$

$25 : 21$ Ans.

Question:- In how many Years were the imports more than 80% of the average exports (per Year) of the country during the given 5 Years?

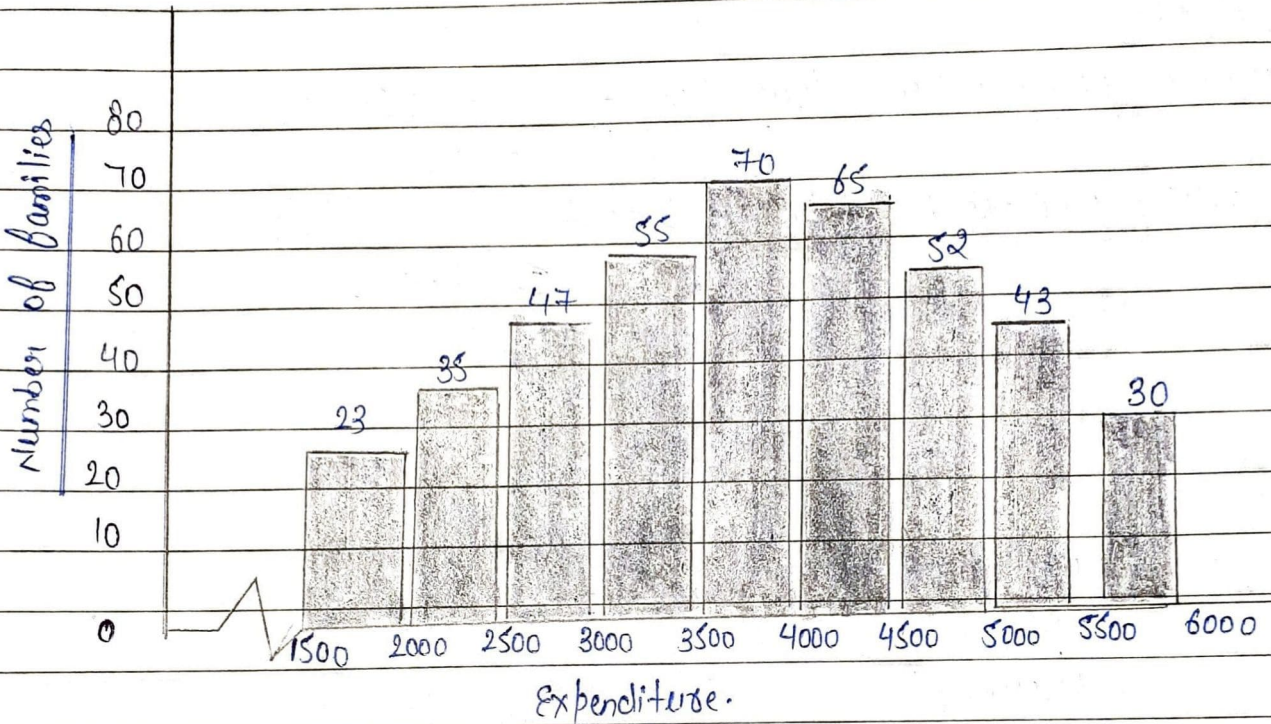
Solution:- Average Export = $\frac{400 + 450 + 600 + 440 + 650}{5}$
 $= \frac{2540}{5} = 508$ Ans.

$508 \times 80\%$
 406.4

3 years (2015, 2016 and 2017) Ans.

Question: Study the graph and answer the question:-

Distribution of monthly expenditure (in ₹) of different families on education.



Question:- The number of families whose monthly expenditures on education are Rs. 2000 or more but less than Rs. 4000 is _____.

Solution:-

$$35 + 47 + 70 + 55 = 207 \text{ Ans.}$$

Question:- What is the ratio of the number of families whose monthly expenditures on education are below Rs. 3000 to the number of families whose monthly expenditures on education are Rs. 4000 or above but less than Rs. 5500?

Solution:-

below 3000 : above 4000 but less than 5500

$$23 + 47 + 35 : 65 + 52 + 43$$

$$= 105 : 160$$

$$21 : 32 \text{ Ans.}$$

Question:- The number of families whose monthly expenditures are Rs. 2500 or more but below Rs. 4000 is what percentage more than the number of families whose monthly expenditures on education are Rs. 4500 or more but below Rs. 6000?

Solution:-

$$\text{Rs. 2500 or more but below 4000:- } 47 + 55 + 70 = 172$$

$$\text{Rs. 4500 or more but below Rs 6000:- } 52 + 43 + 30 = 125$$

$$\frac{125}{172} \times 100$$

$$\begin{aligned} &= \frac{47}{125} \times 100 \\ &= 47 \times 0.8 \\ &= 37.6 \text{ Ans.} \end{aligned}$$

Mean:- (माध्य)
 or Average

$$\text{mean} = \frac{\text{Sum of all observation}}{\text{Total number of observation.}}$$

(Average)

Series:- 1, 5, 7, 3, 7, 4, 5, 5, 8, 3, 4, 5, 9, 2, 10
(unorder way data)

Arranged form increasing order
1, 2, 3, 3, 4, 4, 5, 5, 5, 5, 7, 7, 8, 9, 10

$$\text{mean} = \frac{78}{15} = 5.2 \text{ Ans.}$$

Median :- (माध्यिका)
(Positional Average)

$$\text{median} = (5)$$

1, 2, 3, 3, 4, 4, 5, (5), 5, 5, 7, 7, 8, 9, 10
↓
(median)

Mode:- (सङ्कलक) जो Number सबसे ज्यादा repeat होता है वही
सङ्कलक होता है।
mode = 5

And median?

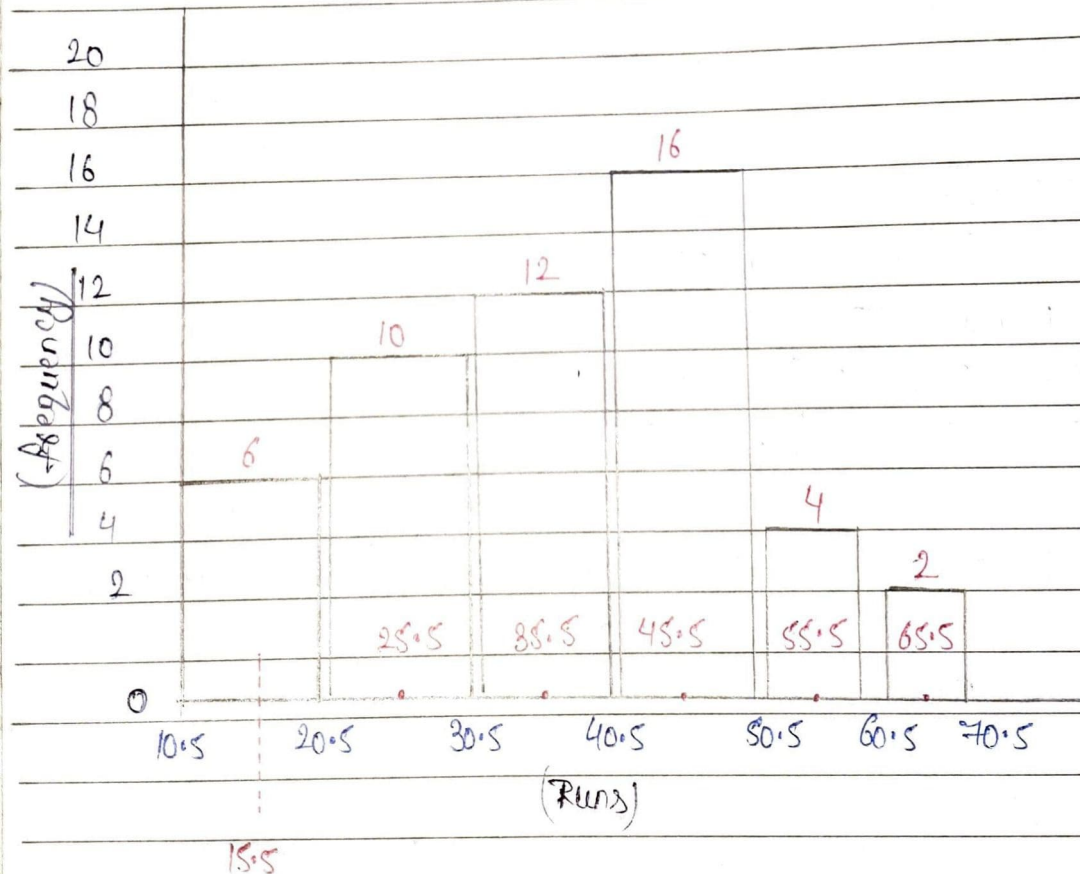
1, 3, 5, 7, 9, 11, 13, 17.

Solution:- 1, 3, 5, 7, 9, 11, 13, 17

$$\text{Median} = \frac{7 + 9}{2}$$

$$= \frac{16}{2} = 8. \text{ Ans.}$$

Question:- The given histogram represents the frequency distribution of average runs scored by 50 selected players from a district in a local cricket tournament.



Question:- Which class of boundaries does the frequency of '10' correspond to?

Average:- $\frac{10.5 + 20.5}{2} = \frac{31}{2} = 15.5$

6 student average = 15.5

10 student average = 25.5

10 correspond - 20.5 to 30.5 Ans.

Question:- How many players scored more than 30.5 on average?

Solution:- more than 30.5 -
 $(12 + 16 + 4 + 2) = 34$ Ans.

Question:- what is the overall average score of the 50 players?

Solution:-

6 players = 15.5

10 players = 25.5

12 players = 35.5

16 players = 45.5

4 players = 55.5

2 players = 65.5

deviation:- $(35.5) +$

Assume mean = (35.5) $\frac{(-120 - 100 + 160 + 80 + 60)}{50}$

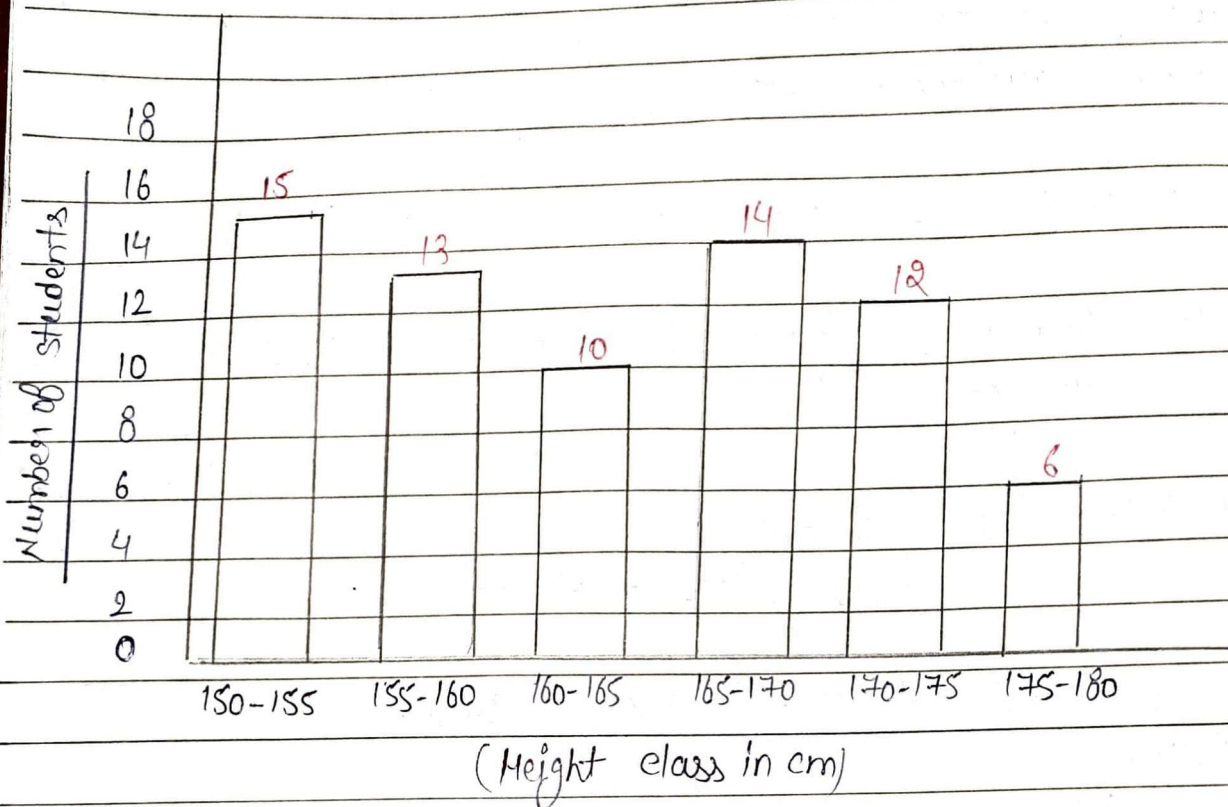
$$35.5 + \frac{80}{50}$$

$$35.5 + 1.6$$

$$37.1$$
 Ans.



Question:- In the given histogram:-



Question:- The number of students whose height is in the class interval 175-180 is what percent less than the number of students whose height is in the class interval 160-165?

Solution:- class interval- 175-180 6 students

class interval 160-165 10 students

$$\begin{array}{r} 10:6 \\ \hline 4 \end{array}$$

$$\frac{4}{10} \times 100$$

$$= 40\% \text{ Ans.}$$



Maths by Ajay Rana

Data Interpretation

Question:- In the given histogram, which class is the median class?

Solution:-

median class - $15+13+10+14+12+6 = 70$ students.

$$\text{Even} = \frac{70}{2} = 35$$

$$\text{Odd} = \frac{n+1}{2}$$

• 35 जहाँ पर आयेगा वही होगा।।

$15+13+10 = 38$ $160-165$ is median class.

Question:- What is the percentage of students whose height is in the class interval $165-170$?

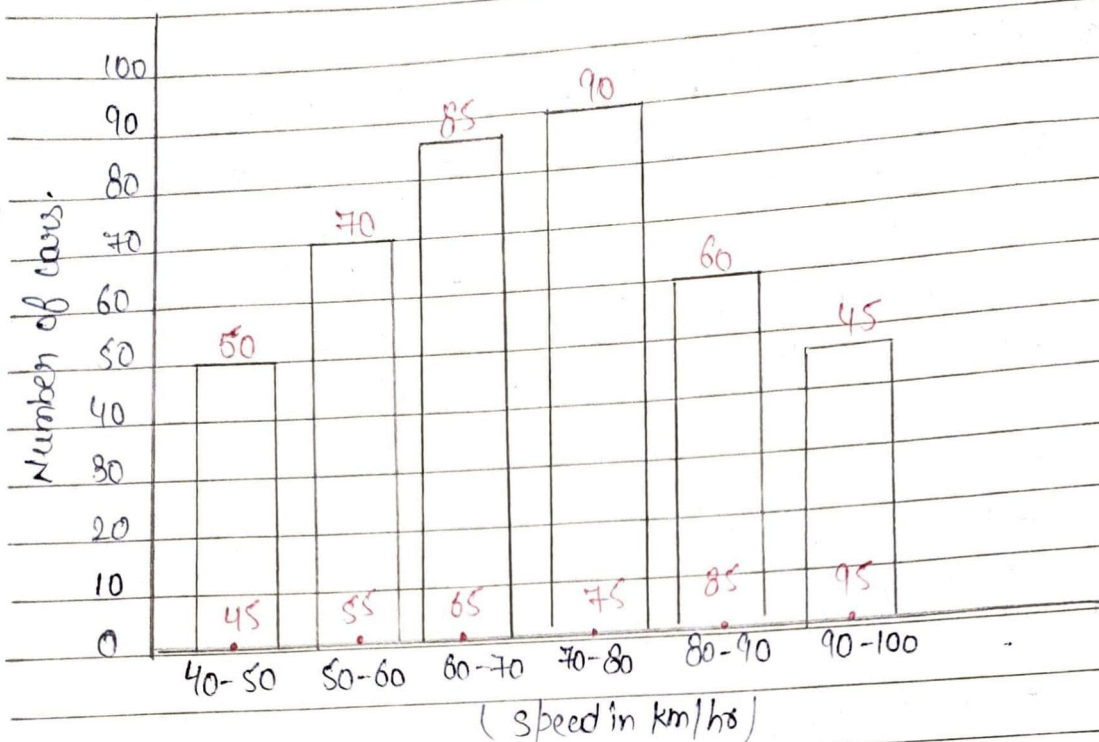
Solution:- Total students = 70.

$165-170$ class interval = 14 students

$$\frac{14}{70} \times 100$$

$$= 20\% \text{ Ans.}$$

Question:-



Question:- in which class interval, the median lies?

Solution:-

Average speed of 40-50	45
Average speed of 50-60	55
" " 60-70	65
" " 70-80	75
" " 80-90	85
" " 90-100	95

Assume speed = 65.

$$\text{deviation } (-1000 - 700 + 900 + 1200 + 1350)$$

400

$$65 + \frac{1750}{400} = 65 + 4.375$$

$$65 + 4.3$$

$$69.3 \text{ Ans.}$$

Question:- In the given histogram, in which class interval, the median lies?

Solution:-

$$\text{Total numbers of cars} = 400 (50 + 70 + 85 + 90 + 60 + 45)$$

$$\frac{400}{2} = 200 \text{ cars}$$

200 cars are lower than the median lies at

$$50 + 70 + 85$$

class intervals: 60-70 Ans.

Question:- In the given histogram, what percentage of cars were running with the speed less than 60 km/hr?

Solution:-

$$\text{Total numbers of cars} = 400$$

$$\text{less than 60} = 70 + 50 = 120$$

$$\frac{120}{400} \times 100$$

$$= 30\% \text{ Ans.}$$

Tabular Date Interpretation

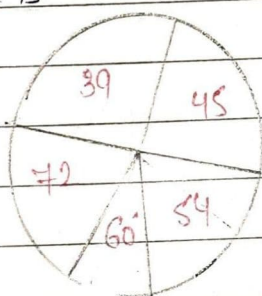
Question:-1 The table shows the production of different types of cars

Cars/year	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	52	48	55

Question-(A) If the data regarding the production of cars of type B is represented by a pie-chart, then the angle of the sector representing the production of cars in 2016 will be:

Solution:-

Type B-



2016.

$$39 + 45 + 54 + 60 + 72 = 270.$$

$$2016 = 60.$$

$$1\% \quad 3.6^\circ$$

$$\frac{60}{270} \times 100\%$$

$$\frac{200}{9} \%$$

$$1\%$$

$$3.6^\circ$$

$$\frac{200}{9} \% = \frac{200}{9} \times 3.6^\circ$$

$$= 80^\circ \text{ Ans.}$$

Question:- The total production of cars of type B in 2013, 2014, 2015 and 2017 taken together is what percent less than the total production of all types of cars in 2016 and 2017?

Solution:-

Type B - (2013, 2014, 2015, 2017)

$$39 + 45 + 54 + 72$$

$$= 210$$

2017 All cars - 255

$$210 : 255$$

$$45$$

$$\frac{45}{255} \times 100\%$$

$$\frac{3}{17} \times 100\% = \frac{300}{17}\% = 17.6\% \text{ Ans.}$$

Question:- The ratio of the total production of cars of type C and type E taken together in 2013 to the total production of cars of type D in 2014 and 2016 and type E in 2017 taken together is:

Solution:-

$$2013 \text{ Car - C and E} = 88$$

Type D 2014 and 2016

$$42 + 46 = 88$$

Type E 2017 55

$$88 + 55 = 143$$

$$88 : 143$$

$$8 : 13 \text{ Ans.}$$

Question:- The production of cars of type A in 2015 and type C in 2013 taken together is approximately what percent of the total production of cars of type D in five years?

Solution:-

$$\text{type A} + \text{type C} = 48 + 52 \\ = 100$$

$$\text{Car D. } 50 + 42 + 45 + 46 + 47 \\ = 230$$

$$100 \div 230$$

$$\frac{100}{230} \times 100 \\ = 43.5\% \text{ Ans.}$$

Question-2 The table below shows the number of students enrolled in five colleges over the five years (2010-2014)

College/Years	A	B	C	D	E
2010	400	270	350	430	470
2011	430	300	330	450	490
2012	370	250	360	470	410
2013	410	310	370	420	430
2014	420	290	340	480	480

Question-A what is the average number of students studying in college D over the given years?

Solution:- Assume mean = 470

$$(-40 - 20 - 50 + 10)$$

$$= 110 + 10$$

$$5$$

$$470 - \frac{100}{5} = 450 \text{ Ans.}$$

Question:- In the year 2014, what percent of students were enrolled in college c.

Solution:-

$$\frac{340}{201} \times 100\% = 16.9\% \text{ -Ans.}$$

Question:- What is the ratio of the total students enrolled in college A and B in the year 2012 to the total students enrolled in college D and E in the year 2013?

Solution:-

$$\text{2012 (A and B)} = \frac{370 + 250}{620}$$

$$\text{(2013) (D and E)} = \frac{420 + 430}{850}$$

$$\frac{620}{850} = \frac{62}{85} \text{ -Ans}$$

Question:- The number of students studying in college E in the year 2013 is approximately what percent of the number of students studying in college B, C and D taken together in the year 2013.

Solution:-

$$\begin{array}{ll} \text{E - in 2013} & 430 \\ \text{B+C+D in 2013} & 1100 \end{array}$$

$$\frac{430}{1100} \times 100\% = 39.1\% \text{ -Ans.}$$

Question:-3 The table below shows the percentage of students and the ratio of boys and girls in different college.
Total students = 1800.

College	% students	Boys : Girls
A	20	4 : 5
B	18	1 : 2
C	14	4 : 3
D	22	6 : 5
E	10	2 : 3
F	16	9 : 7

Question- what is the percentage of girls in college D, E and F taken together.

Solution:-

D, E, and F

$$\text{Girls :- } 22 \times \frac{5}{11} = 10$$

$$10 \times \frac{3}{5} = 6$$

$$16 \times \frac{7}{16} = 7$$

23

total girls 23

total students 48 (22+10+16)

$$= \frac{23}{48} \times 100$$

$$= 47.9\% \text{ Ans.}$$

Question:- If 10% of the girls from college A are transferred to college E, then what is the increase in the percentage of girls in college E?

Solution:-

$$\text{College A girls} = \frac{1800 \times 20\%}{360}$$

Boys - 4 : 5 - girls

$$\frac{5}{9} \times 360 = 200$$

$$\text{girls} = 200 \times 10\% = 20$$

20 girls transfer college E.

$$\text{College E girls} = \frac{1800 \times 10\%}{180}$$

2 : 3 - 108 girls

60% girls in college E.

$$20 \text{ transferred College E} = \text{then } 180 + 20 = 200$$

$$\text{girls} = \frac{108 + 20}{200}$$

$$= \frac{128}{200} \times 100\%$$

$$= 64\%$$

$$60\% \quad 64\%$$

+4% Ans.

Question:- what is the ratio of boys and girls in the college A and B taken together?

Solution:-

$$\begin{array}{ccc} \text{Boys} & : & \text{Girls} \\ \frac{20 \times 4}{9} + \frac{18 \times 1}{3} & : & \frac{20 \times 5}{9} + \frac{18 \times 2}{3} \\ = 134 : 208 & & \\ & & 67 : 104 \text{ Ans.} \end{array}$$

Question:- 4 The following table indicates the number of students studying in three disciplines in five colleges:

Disciplines.	Colleges				
	A	B	C	D	E
Science	300	350	275	400	275
Commerce	250	400	325	275	250
Economics	400	450	250	300	500

Question:- what percentage of total students are studying in the Commerce stream in all five colleges together

Solution:-

$$\frac{1500}{1600 + 1500 + 19000} = \frac{1500}{5000} \times 100 = 30\% \text{ Ans.}$$

Question:- what is the ratio of the total number of students studying in the science stream that of studying in Commerce stream in all five college taken together?

Solution:-

Science : Commerce

~~1600~~ : ~~1500~~

16:15 Ans

Question:- If a pie-chart is drawn representing the number of students in all five - colleges, what is the central angle of the sectors representing the study of College B?

Solution:-

College B
total students

$$= \frac{1200}{5000} = \frac{6}{25} \times 360^\circ 72$$

$$= 1.2 \times 72^\circ$$

$$= 86.4^\circ \text{ Ans}$$

Question:- What percentage of students in College B is studying in the science stream.

Solution:-

$$\frac{350}{1200} \times 100$$

29.2% Ans

Question:- The following table shows the percentage distribution of students in various disciplines from five different colleges?

Disciplines	Colleges				
	A	B	C	D	E
Science	25	35	45	28	35
Economics	35	40	20	42	25
Mathematics	40	25	35	30	40
Total student	8000	10000	15000	9000	11000

Question: what is the percentage of students from the discipline of mathematics for college A and C taken together

Solution:-

Mathematics students:

A	$80 \times 40\% = 32$
B	$100 \times 25\% = 25$
C	$150 \times 35\% = 52.5$
D	$90 \times 30\% = 27$
E	$110 \times 40\% = 44$
	<u>180.5</u>

$$\begin{aligned}
 \frac{\text{College A} + \text{College C}}{\text{Total student}} &= \frac{32 + 52.5}{180.5} \\
 &= \frac{84.5}{180.5} \times 100\% \\
 &= 36.7 \text{ Ans.}
 \end{aligned}$$

Question:- What is the average number of students from the science discipline of all the colleges taken together.

Solution:-

$$\begin{aligned} \text{Science :- } & \frac{2000 + 3500 + 6750 + 2520 + 3850}{5} \\ & = \frac{18620}{5} \quad \underline{3724 \text{ Ans.}} \end{aligned}$$

Question:- The number of students from the discipline of Economics from college B is approximately what percentage of the number of students from the discipline Science from the college C?

$$\begin{aligned} \text{Solution:- } & \text{Economics college B} = 10000 \times 40\% \\ & = 4000 \\ & \text{Science college C} = 15000 \times 45\% \\ & = 6750 \end{aligned}$$

$$\begin{aligned} & \frac{4000}{6750} \times 100\% = \frac{1600}{27}\% \\ & = \underline{59\% \text{ Ans.}} \end{aligned}$$



Maths by Ajay Rana

Data Interpretation