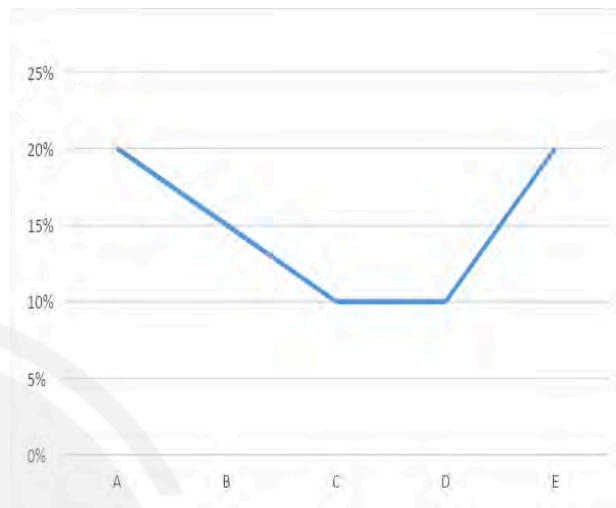
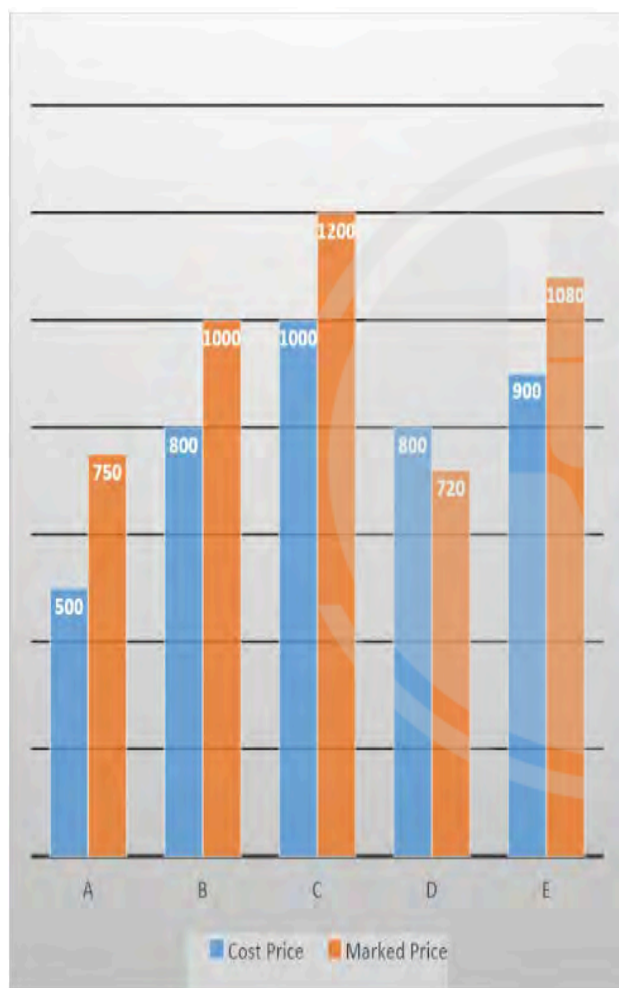


# Quantitative Aptitude

## Combinations or Mixed DI

### Level-1

**Q1** Directions: The bar graph represents the Cost Price and Marked Price of the object and line graph represents the Discount % on Marked Price.

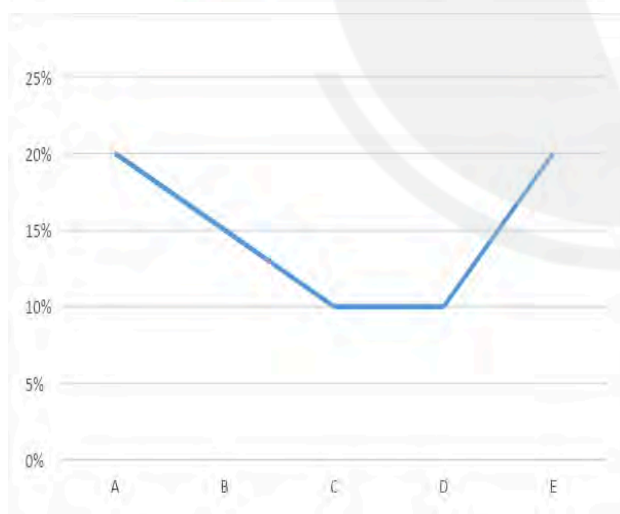
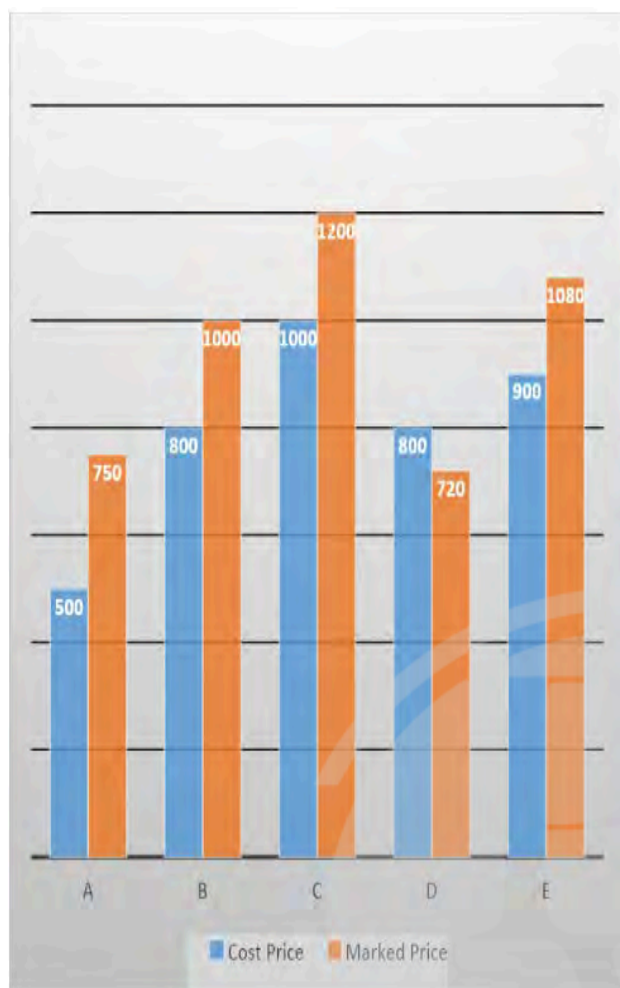


Find the profit on object A & B together?

- (A) 200
- (B) 300
- (C) 400
- (D) 250
- (E) None of these

**Q2** Directions: The bar graph represents the Cost Price and Marked Price of the object and line graph represents the Discount % on Marked Price.





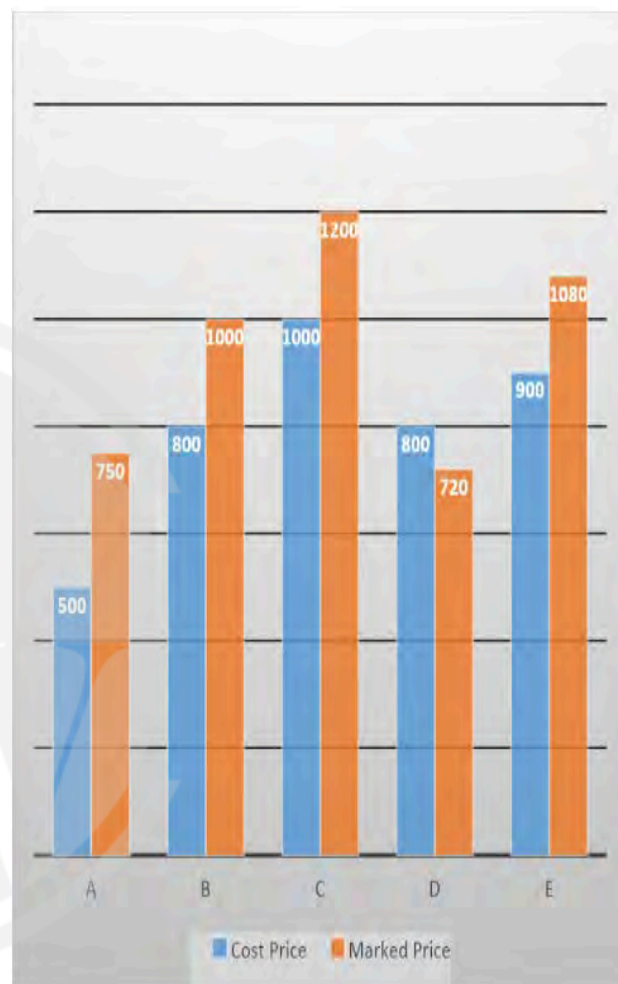
What is average selling price of all the objects together?

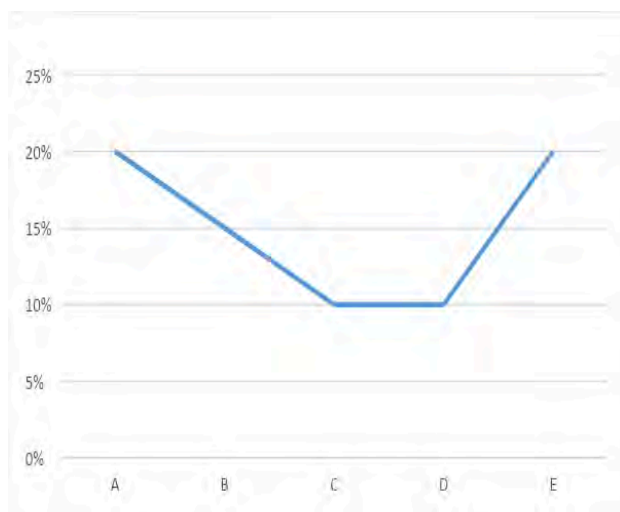
- (A) 810.00                      (B) 808.40

- (C) 805.00                      (D) 818.12

(E) None of these

**Q3** Directions: The bar graph represents the Cost Price and Marked Price of the object and line graph represents the Discount % on Marked Price.

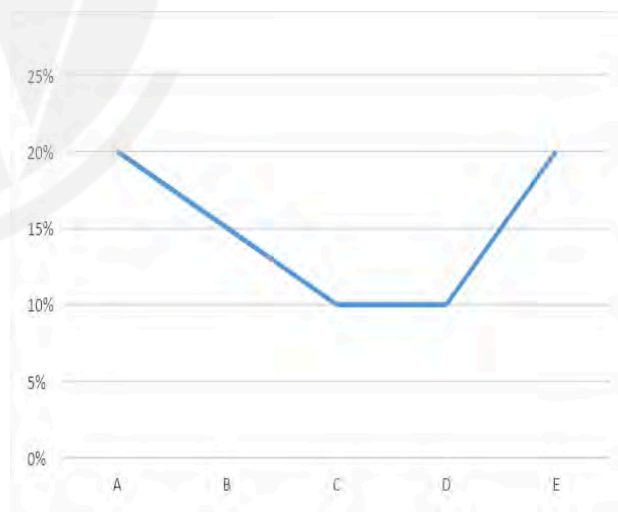
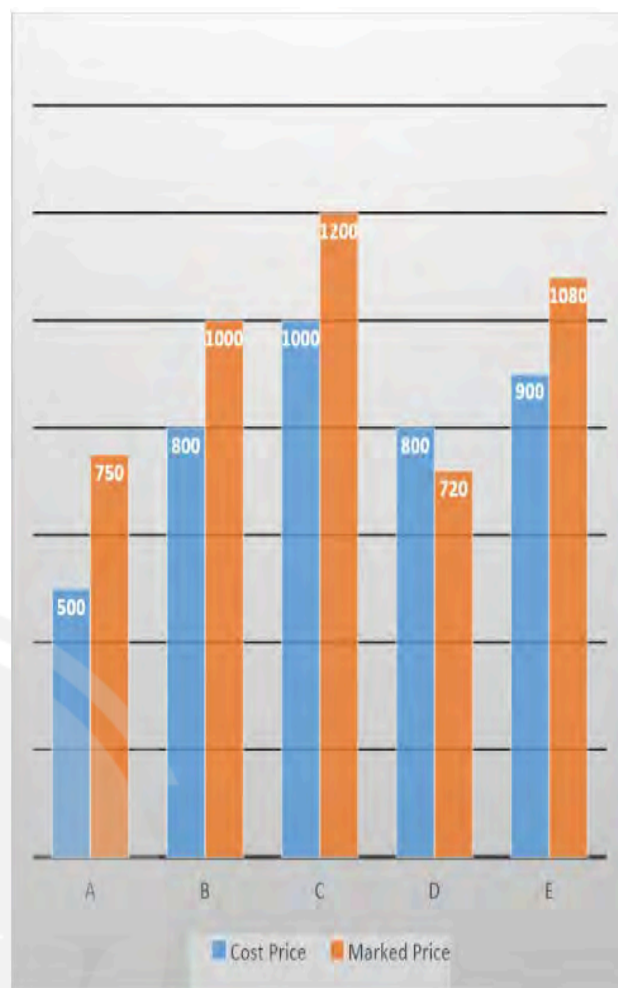




Find the overall profit percent on object A, B & C together?

- (A) 7.82 %                      (B) 7.52 %  
 (C) 6.42 %                      (D) 7.92 %  
 (E) None of these

**Q4** Directions: The bar graph represents the Cost Price and Marked Price of the object and line graph represents the Discount % on Marked Price.



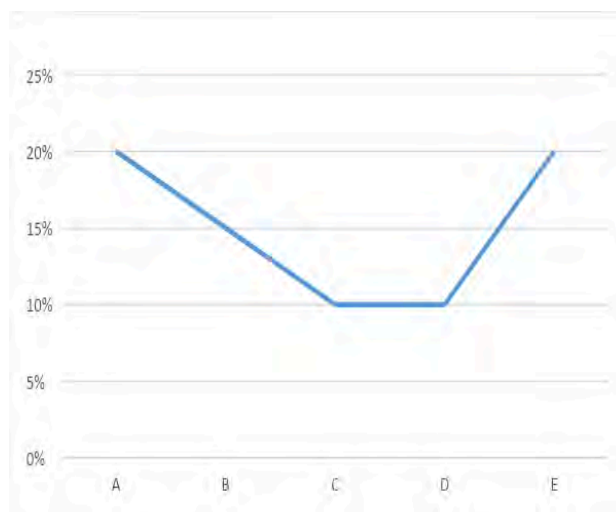
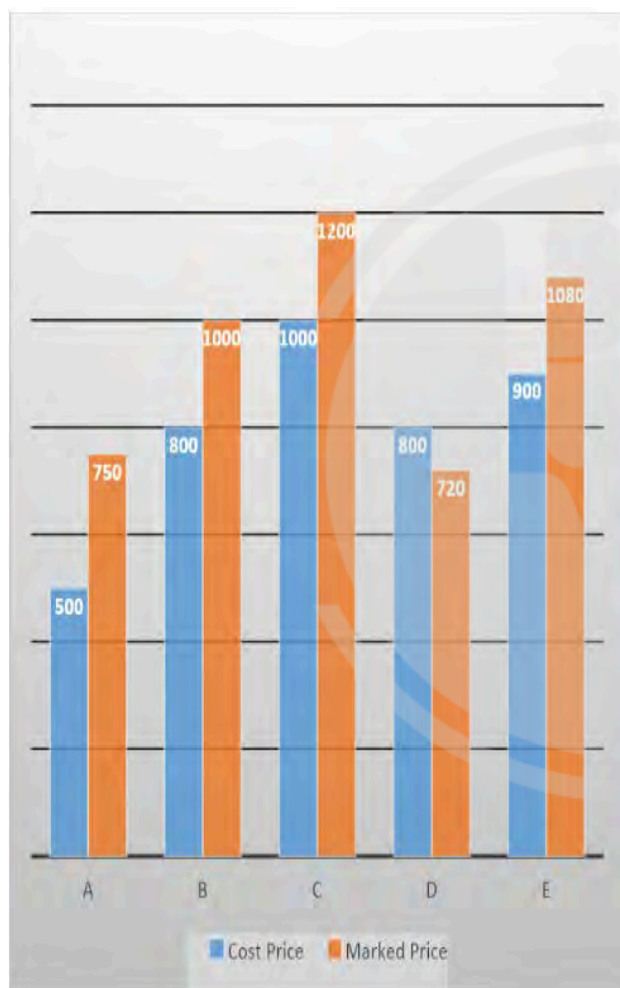
The marked price of the object F is 20% more than the marked price of the object of C and the cost price of object F is equal to the marked



price of the object B and the discount percentage is equal to the discount on object C. Then, find the profit percent on object F ?

- (A) 28 %                      (B) 29.6%  
 (C) 28.6 %                  (D) 25 %  
 (E) None of these

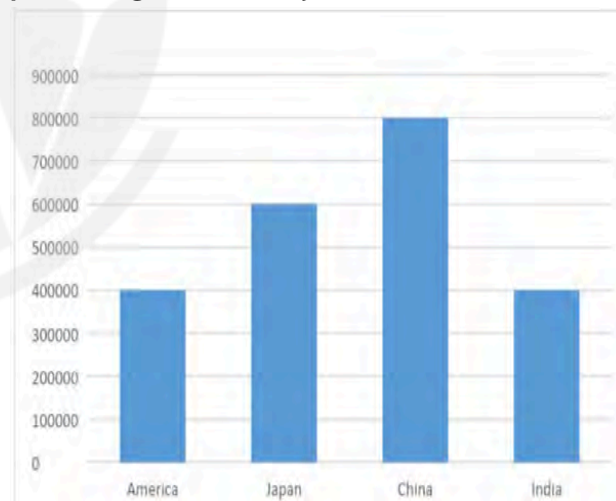
**Q5** Directions: The bar graph represents the Cost Price and Marked Price of the object and line graph represents the Discount % on Marked Price.

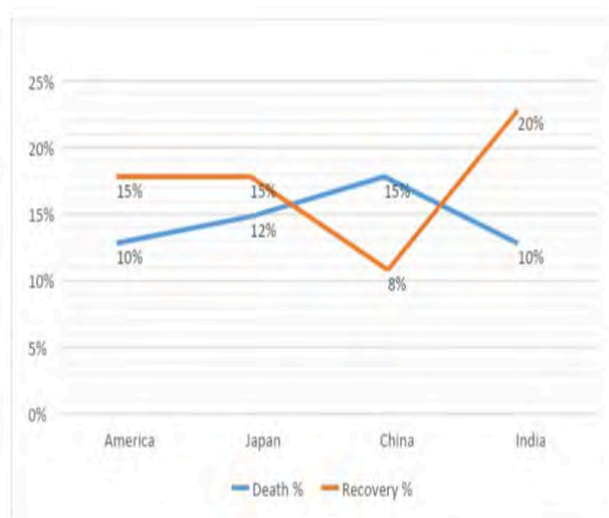


Find the profit % on object C ?

- (A) 10 %                      (B) 12 %  
 (C) 8 %                      (D) 11 %  
 (E) None of these

**Q6** Directions: The bar graph represents the number of covid patient and line graph represents the percentage of death and percentage of recovery.

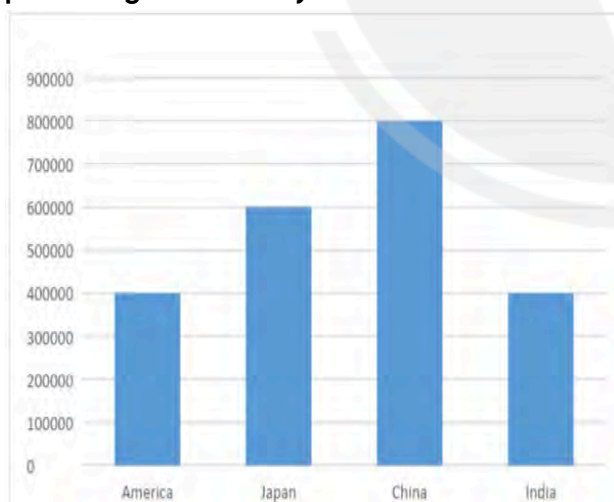




What is the ratio of number of recover Patient and number of death patient in India to the number of death patient in China?

- (A) 8 : 15                      (B) 15 : 8  
 (C) 11 : 8                      (D) 15 : 11  
 (E) None of these

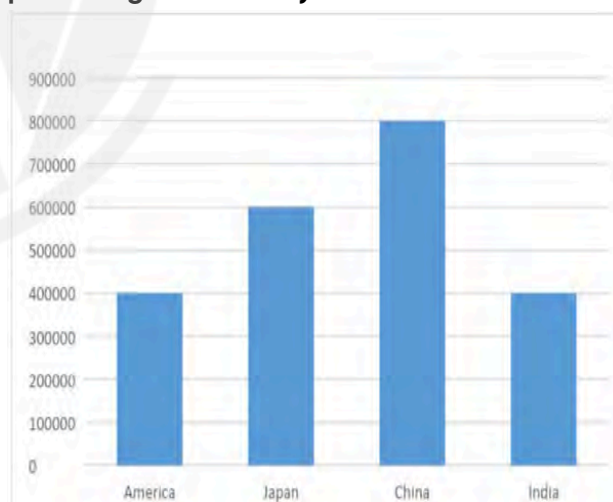
**Q7 Directions:** The bar graph represents the number of covid patient and line graph represents the percentage of death and percentage of recovery.

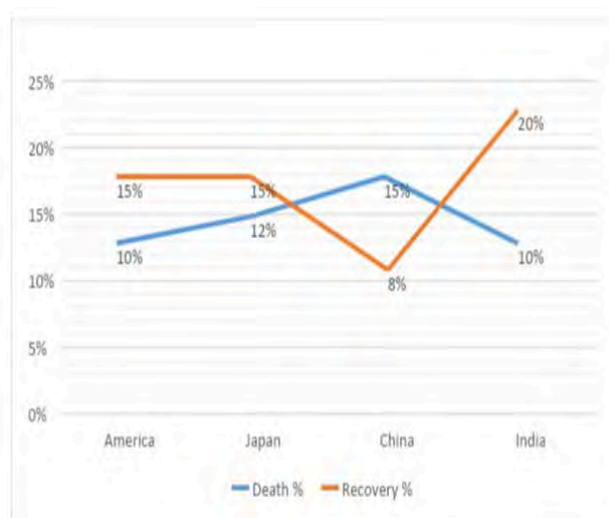


What is the ratio of number of recovery patient in china to the number death patient in India?

- (A) 8 : 5                      (B) 5 : 8  
 (C) 11 : 5                      (D) 5 : 11  
 (E) None of these

**Q8 Directions:** The bar graph represents the number of covid patient and line graph represents the percentage of death and percentage of recovery.

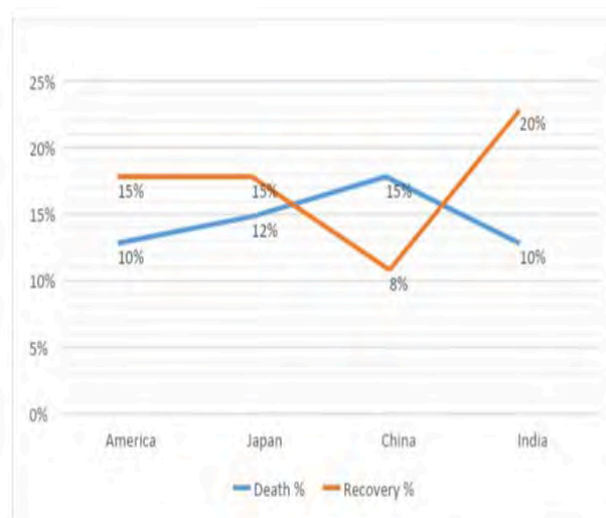
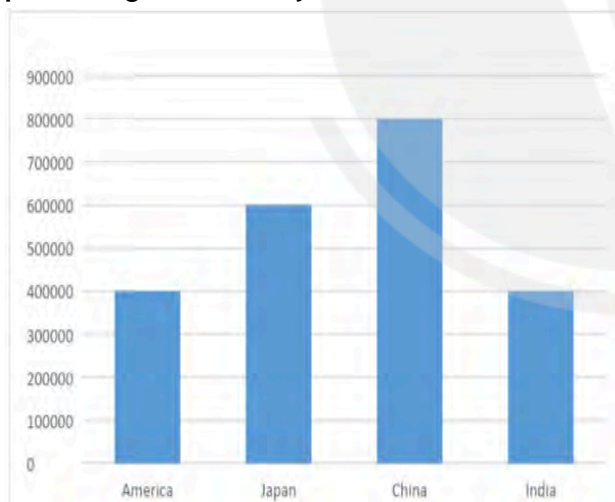




What is the total number of recover patient?

- (A) 295000 (B) 294000  
(C) 200000 (D) 250000  
(E) None of these

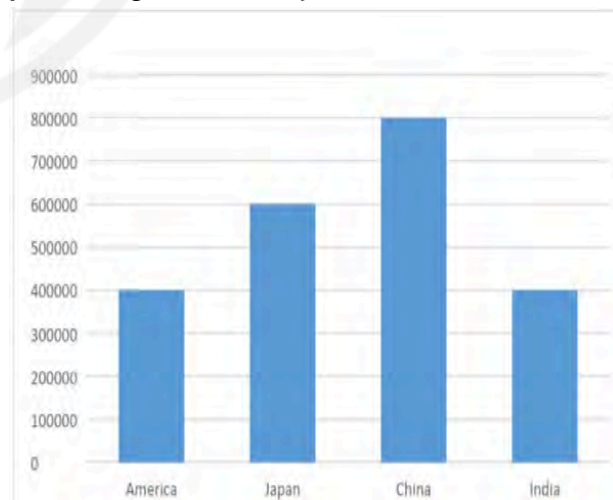
**Q9 Directions:** The bar graph represents the number of covid patient and line graph represents the percentage of death and percentage of recovery.



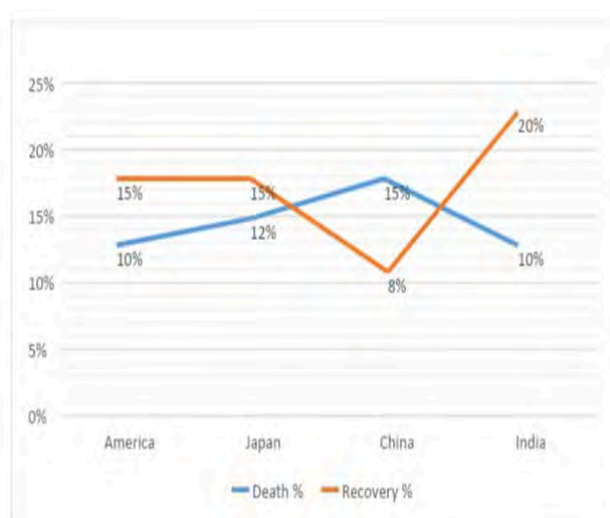
Number of recovery patient in America is what percent more or less than the number of recovery patient in India?

- (A) 25% *less*  
(B) 25% *more*  
(C) 20% *less*  
(D) 20% *more*  
(E) None of these

**Q10 Directions:** The bar graph represents the number of covid patient and line graph represents the percentage of death and percentage of recovery.



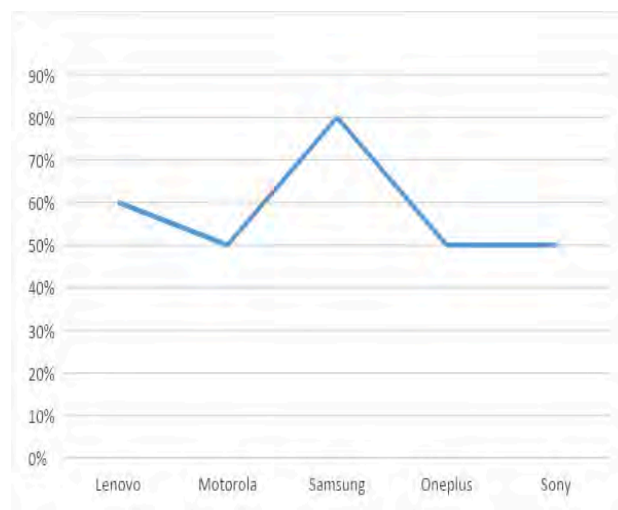
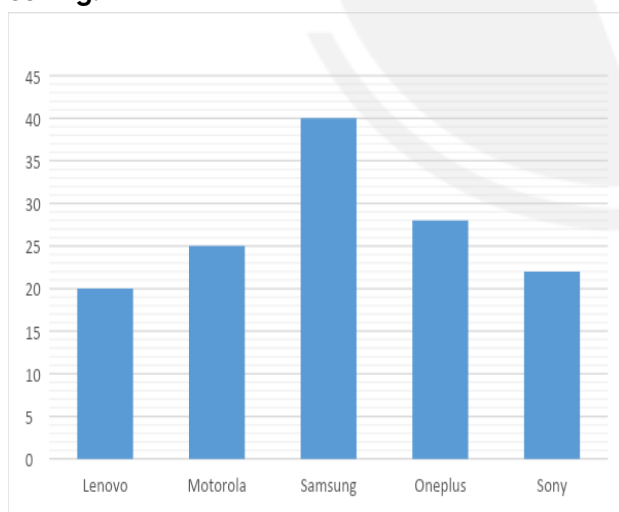




Number of covid patient in Japan is what percent more or less than the number of number covid patient in china?

- (A) 25% *less*                      (B) 25% *more*  
 (C) 20% *more*                      (D) 20% *less*  
 (E) None of these

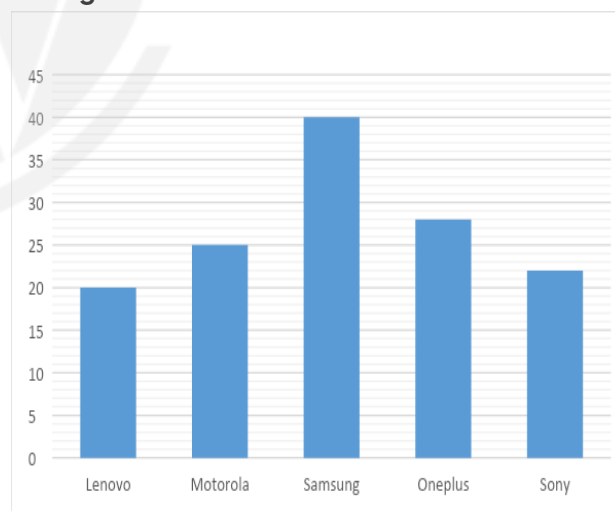
**Q11** Directions: The bar graph represents the number of production of different mobile company and the line graph shows the % of selling.

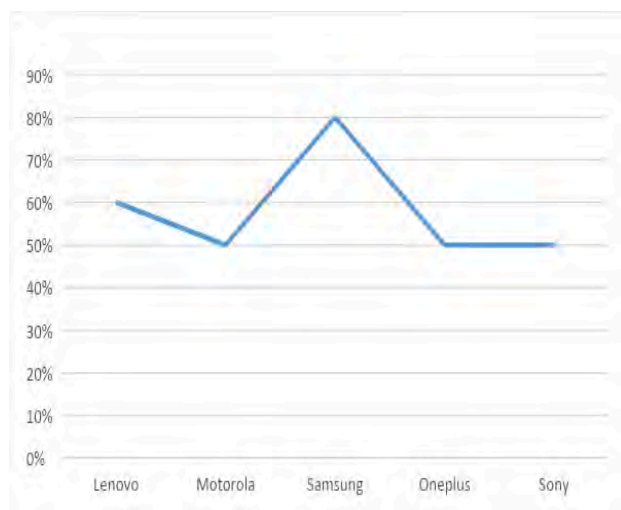


Number of oneplus mobile sells is what percent more or less than the number of Motorola mobile sells?

- (A) 12% more                      (B) 12% less  
 (C) 10% more                      (D) 10% less  
 (E) None of these

**Q12** Directions: The bar graph represents the number of production of different mobile company and the line graph shows the % of selling.

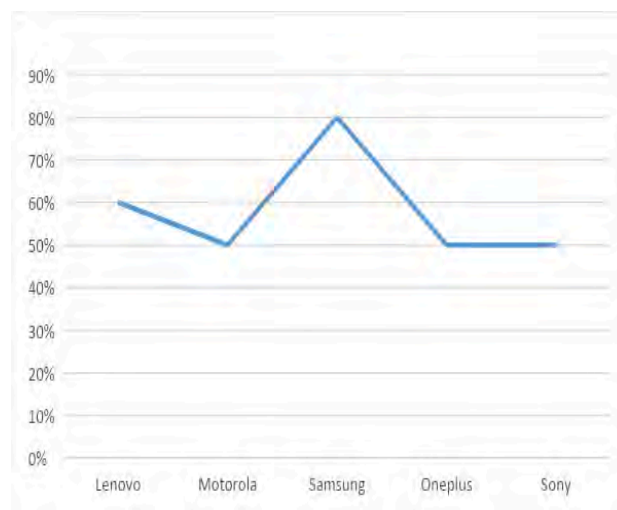
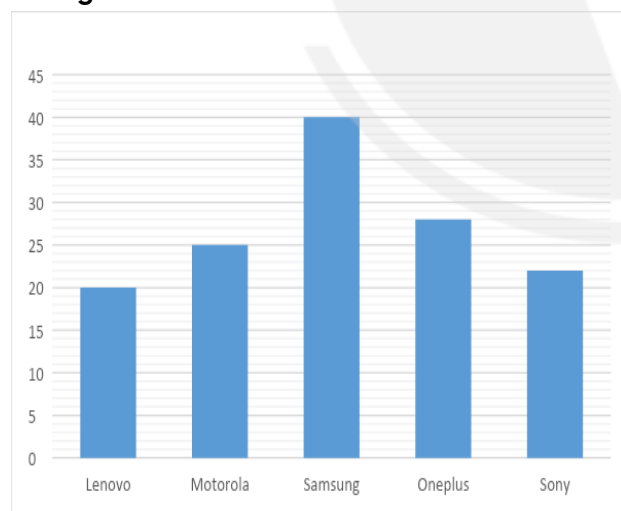




What is the ratio of number of selling of Lenovo mobile to the number of selling of Motorola mobile?

- (A) 24 : 25                      (B) 25 : 24  
 (C) 21 : 25                      (D) 25 : 21  
 (E) None of these

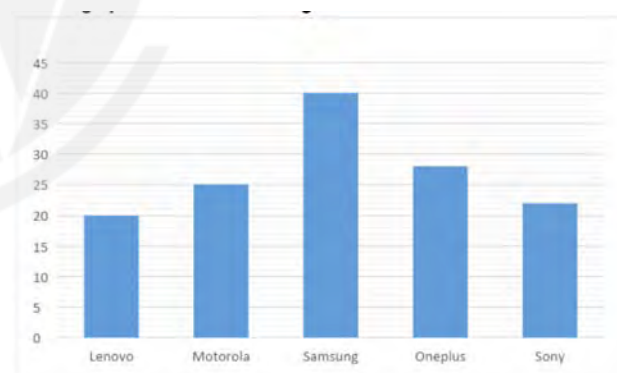
**Q13** Directions: The bar graph represents the number of production of different mobile company and the line graph shows the % of selling.



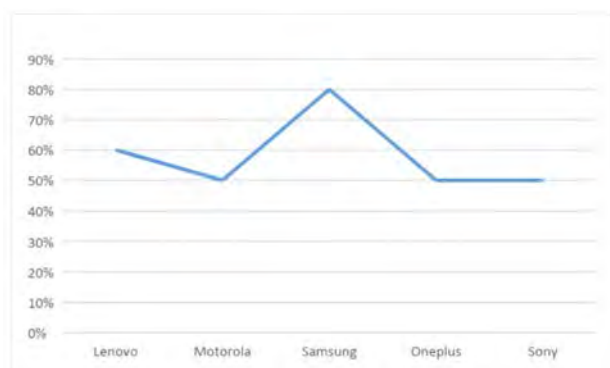
What is the ratio of sell of Lenovo mobile to production of Samsung mobile?

- (A) 10 : 3                      (B) 3 : 10  
 (C) 7 : 10                      (D) 7 : 3  
 (E) None of these

**Q14** Directions: The bar graph represents the number of production of different mobile company and the line graph shows the % of selling.



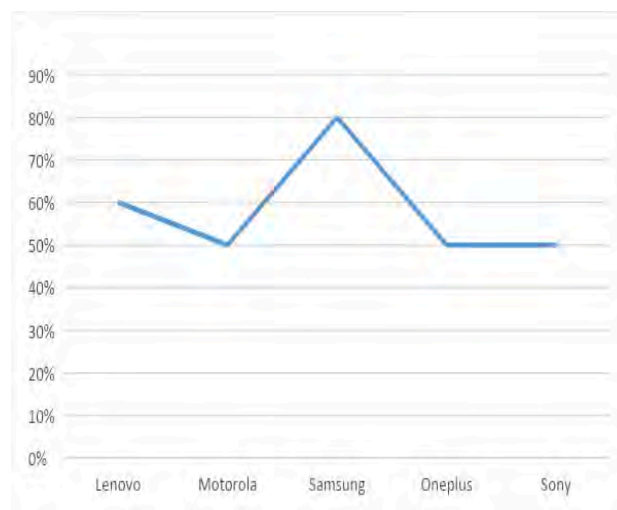
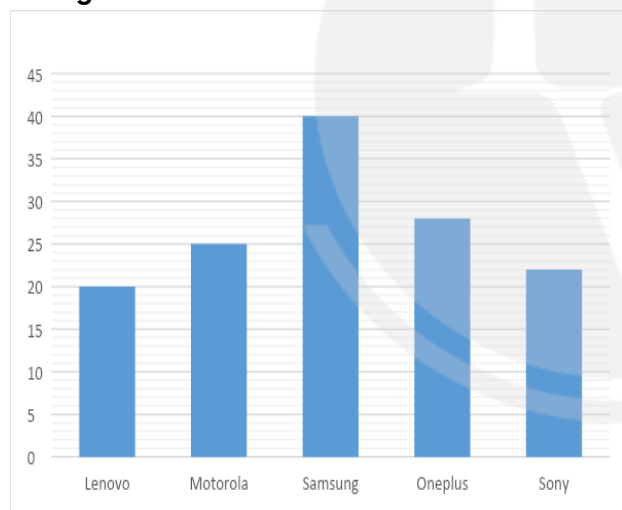




What is the average number of mobiles sell together?

- (A) 1600000 (B) 1630000  
(C) 1200000 (D) 1250000  
(E) None of these

**Q15** Directions: The bar graph represents the number of production of different mobile company and the line graph shows the % of selling.



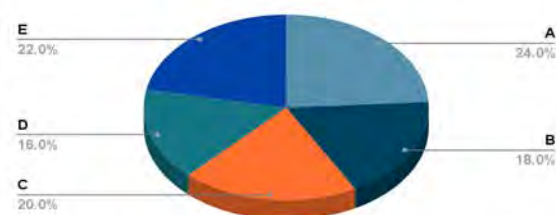
Number of Samsung mobile sell is what percent of number of oneplus mobile sell?

- (A) 228.5% (B) 228.0%  
(C) 220.0% (D) 222.0%  
(E) None of these

**Q16** Directions: Study the following pie and line chart carefully and answer the questions given beside.

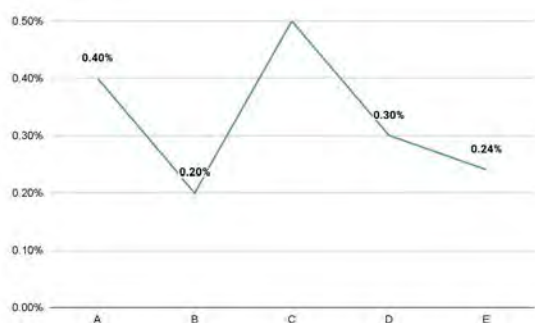
The pie chart given below gives information about the percentage distribution of child labour from five different cities. The line graph given below gives information about the percentage of child labour with respect to the total population of the respective cities.

**Total Number of Child labours = 4800**



The percentage of child labours with respect to total population of the respective cities :





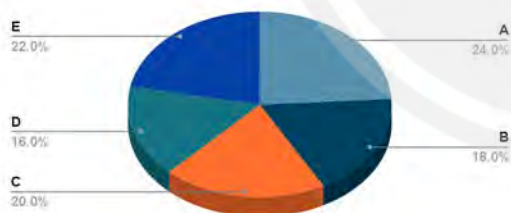
What is the difference between the total population of city A and that of city D?

- (A) 34000 (B) 32000  
(C) 36000 (D) 42000  
(E) 40000

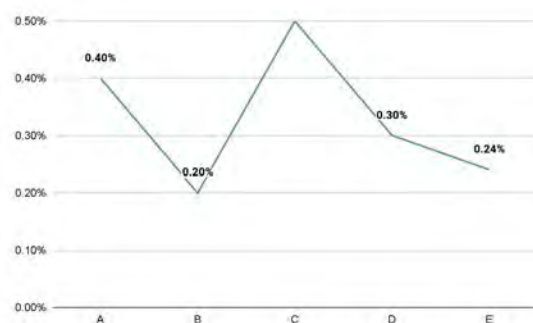
**Q17 Directions: Study the following pie and line chart carefully and answer the questions given beside.**

The pie chart given below gives information about the percentage distribution of child labour from five different cities. The line graph given below gives information about the percentage of child labour with respect to the total population of the respective cities.

**Total Number of Child labours = 4800**



The percentage of child labours with respect to total population of the respective cities :



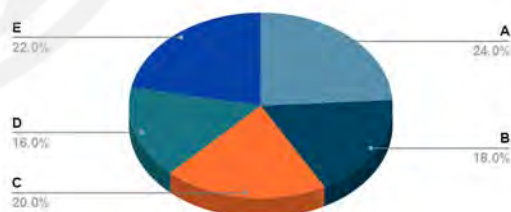
Find the sum of the total number of people in the cities B and D together who are not child labour?

- (A) 686368 (B) 684268  
(C) 688632 (D) 686248  
(E) 600780

**Q18 Directions: Study the following pie and line chart carefully and answer the questions given beside.**

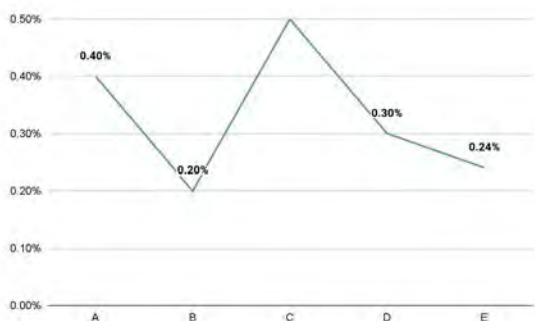
The pie chart given below gives information about the percentage distribution of child labour from five different cities. The line graph given below gives information about the percentage of child labour with respect to the total population of the respective cities.

**Total Number of Child labours = 4800**



The percentage of child labours with respect to total population of the respective cities :





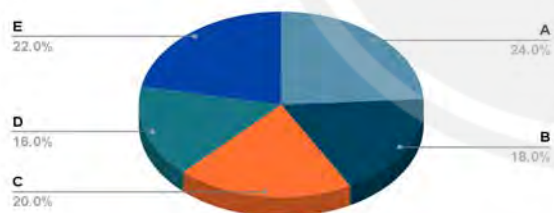
What is the ratio of the total population of city C to that of city E?

- (A) 48:88                      (B) 12:55  
(C) 24:55                      (D) 60:121  
(E) 3:5

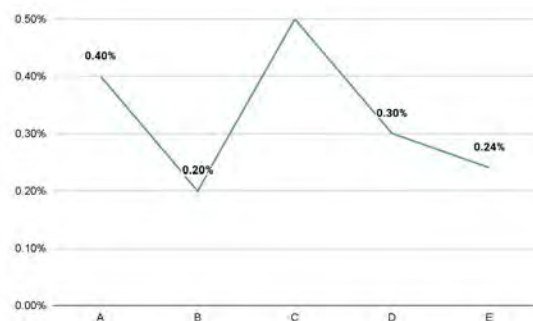
**Q19** Directions: Study the following pie and line chart carefully and answer the questions given beside.

The pie chart given below gives information about the percentage distribution of child labour from five different cities. The line graph given below gives information about the percentage of child labour with respect to the total population of the respective cities.

**Total Number of Child labours = 4800**



The percentage of child labours with respect to total population of the respective cities :



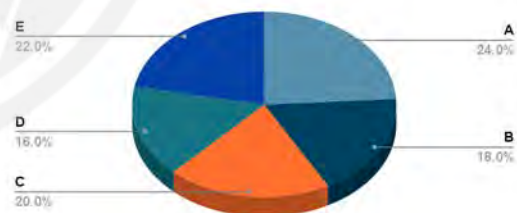
What is the sum of the total population of all the five cities together?

- (A) 1612000                      (B) 1628000  
(C) 1608000                      (D) 1638000  
(E) 1518000

**Q20** Directions: Study the following pie and line chart carefully and answer the questions given beside.

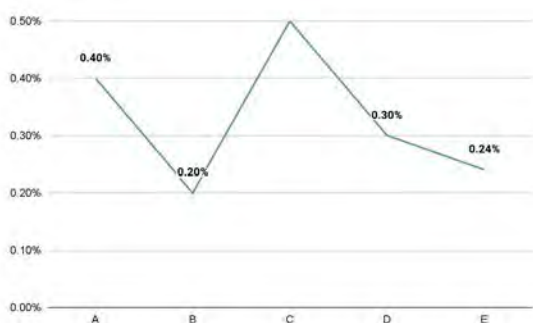
The pie chart given below gives information about the percentage distribution of child labour from five different cities. The line graph given below gives information about the percentage of child labour with respect to the total population of the respective cities.

**Total Number of Child labours = 4800**



The percentage of child labours with respect to total population of the respective cities :



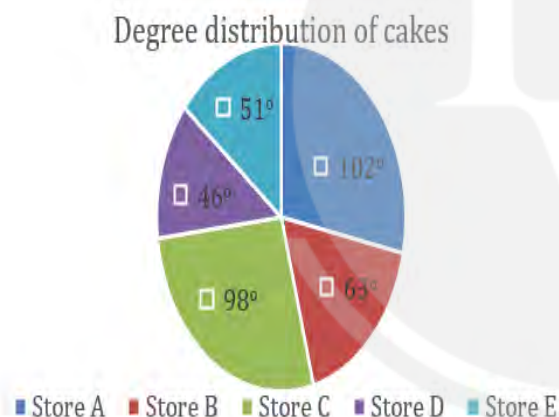


The number of child labours in city A is what percentage of the total population of city C ?

- (A) 1.2% (B) 0.4%  
(C) 0.6% (D) 0.8%  
(E) 1.2%

**Q21** Directions : Study the following information and answer the following questions.

The following pie charts show the degree distribution of the cakes in five different stores. The total number of the cakes = 10080.



The following table shows the ratio of butter cakes to milk cakes in different stores.

store	ratio of butter cakes to milk cakes	ratio of butter cakes sold to unsold	ratio of milk cakes sold to unsold
A	15:9	11:4	7:2
B	5:7	21:14	2:1
C	5:3	3:2	1:2

D	3:5	2:1	3:2
E	7:5	5:1	5:1

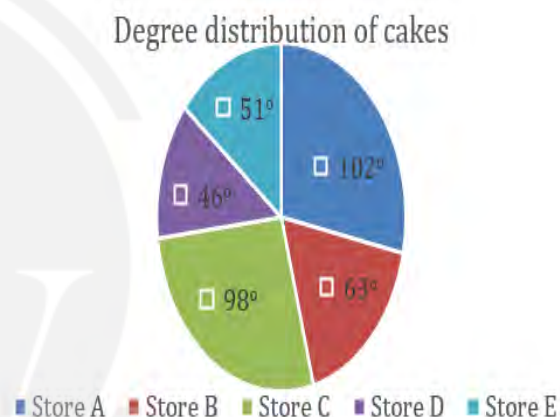
Total number of butter cakes unsold is what percentage of the total number milk cakes unsold in all stores?

- (A) 92.74% (B) 98.74%  
(C) 102.74% (D) 106.74%  
(E) none of these

**Q22** Directions : Study the following information and answer the following questions.

The following pie charts show the degree distribution of the cakes in five different stores.

The total number of the cakes = 10080.



The following table shows the ratio of butter cakes to milk cakes in different stores.

store	ratio of butter cakes to milk cakes	ratio of butter cakes sold to unsold	ratio of milk cakes sold to unsold
A	15:9	11:4	7:2
B	5:7	21:14	2:1
C	5:3	3:2	1:2
D	3:5	2:1	3:2
E	7:5	5:1	5:1

If the quantity of milk cakes is 3 pounds and the quantity of butter cakes is 5 pounds in store B and C then find total quantity sold by the both stores.

- (A) 10137 pounds (B) 10237 pounds

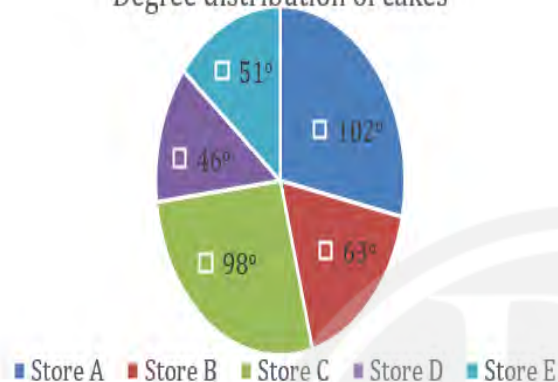


- (C) 10337 pounds (D) 10437 pounds  
(E) none of these

**Q23** Directions : Study the following information and answer the following questions.

The following pie charts show the degree distribution of the cakes in five different stores. The total number of the cakes = 10080.

Degree distribution of cakes



The following table shows the ratio of butter cakes to milk cakes in different stores.

store	ratio of butter cakes to milk cakes	ratio of butter cakes sold to unsold	ratio of milk cakes sold to unsold
A	15:9	11:4	7:2
B	5:7	21:14	2:1
C	5:3	3:2	1:2
D	3:5	2:1	3:2
E	7:5	5:1	5:1

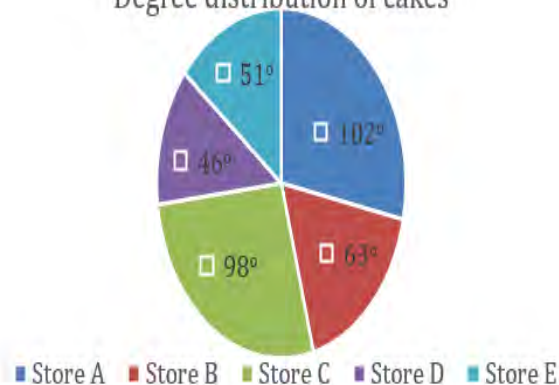
Total number of the butter cakes unsold in store A, C and E together is what percentage of the total number of milk cakes sold in store A, C and E?

- (A) 57.38% (B) 63.38%  
(C) 71.38% (D) 79.38%  
(E) none of these

**Q24** Directions : Study the following information and answer the following questions.

The following pie charts show the degree distribution of the cakes in five different stores. The total number of the cakes = 10080.

Degree distribution of cakes



The following table shows the ratio of butter cakes to milk cakes in different stores.

store	ratio of butter cakes to milk cakes	ratio of butter cakes sold to unsold	ratio of milk cakes sold to unsold
A	15:9	11:4	7:2
B	5:7	21:14	2:1
C	5:3	3:2	1:2
D	3:5	2:1	3:2
E	7:5	5:1	5:1

Sum of the number of butter cakes sold in store A, B and E together and number of milk cakes sold in store B, D and E together is what percentage of the total number of cakes in all stores.

- (A) 38.24% (B) 41.24%  
(C) 43.24% (D) 47.24%  
(E) none of these

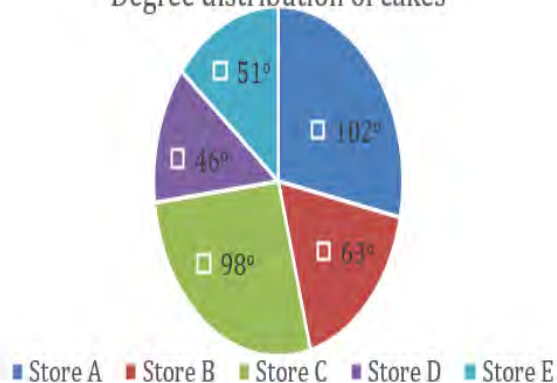
**Q25** Directions : Study the following information and answer the following questions.

The following pie charts show the degree distribution of the cakes in five different stores. The total number of the cakes = 10080.





Degree distribution of cakes



The following table shows the ratio of butter cakes to milk cakes in different stores.

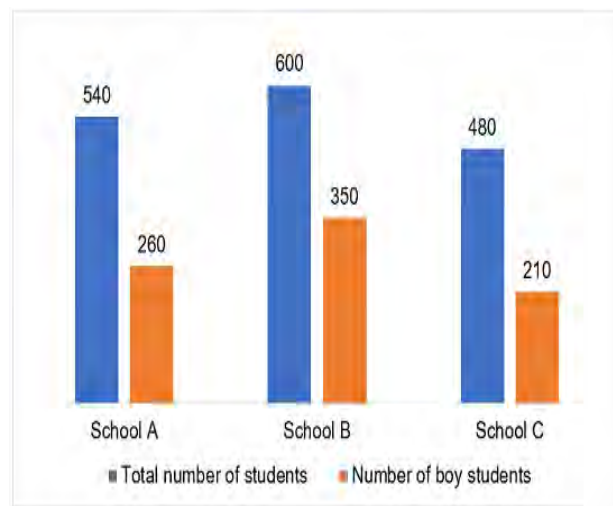
store	ratio of butter cakes to milk cakes	ratio of butter cakes sold to unsold	ratio of milk cakes sold to unsold
A	15:9	11:4	7:2
B	5:7	21:14	2:1
C	5:3	3:2	1:2
D	3:5	2:1	3:2
E	7:5	5:1	5:1

What is the Ratio of the number of the milk cakes sold in store E to the average number of the butter cakes sold in store A and B?

- (A) 133:143 (B) 143:133  
 (C) 175:169 (D) 169:175  
 (E) None of these

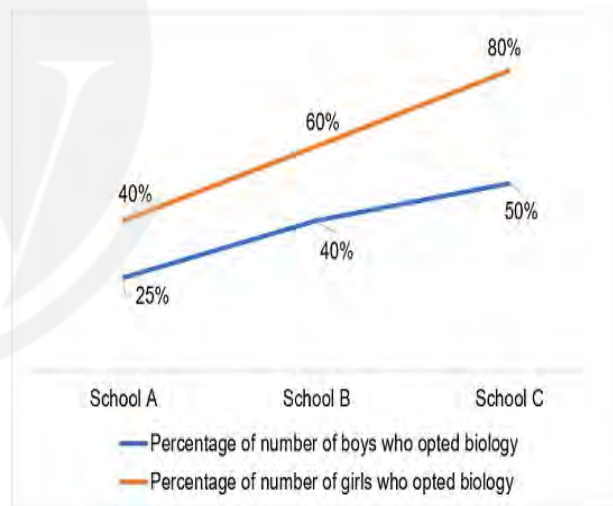
**Q26** Directions: Answer the questions based on the information given below.

The bar graph given below shows the total number of students (boys + girls) and the number of boys, in 3 different schools.



The line graph given below shows the percentage of number of boys who opted biology and percentage of number of girls who opted biology out of total number of boys and total number of girls, respectively, in each of the 3 schools.

Note: - Each student has to opt for exactly one subject between biology and maths.



The ratio of number of girls who opted biology in schools 'C' and 'D' is 9:10, respectively. Find the number of girls in school 'D' who opted biology.

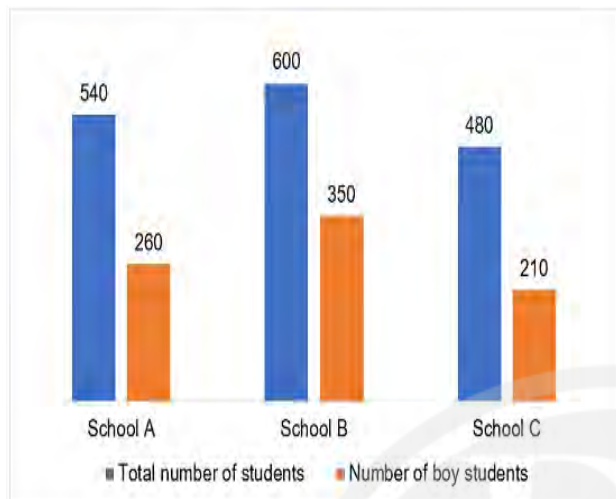
- (A) 154 (B) 198  
 (C) 156 (D) 130  
 (E) 240





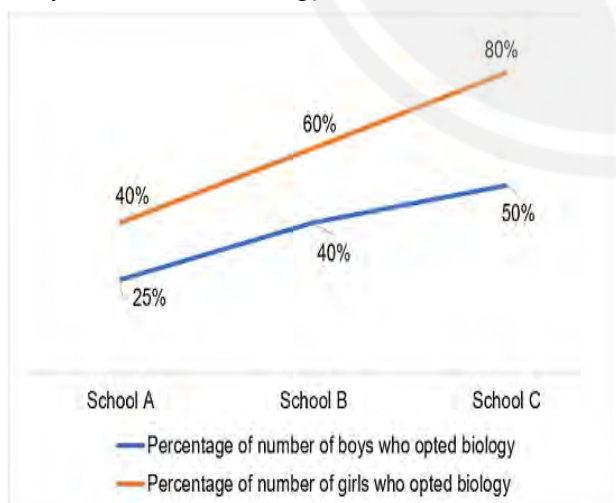
**Q27** Directions: Answer the questions based on the information given below.

The bar graph given below shows the total number of students (boys + girls) and the number of boys, in 3 different schools.



The line graph given below shows the percentage of number of boys who opted biology and percentage of number of girls who opted biology out of total number of boys and total number of girls, respectively, in each of the 3 schools.

Note: - Each student has to opt for exactly one subject between biology and maths.



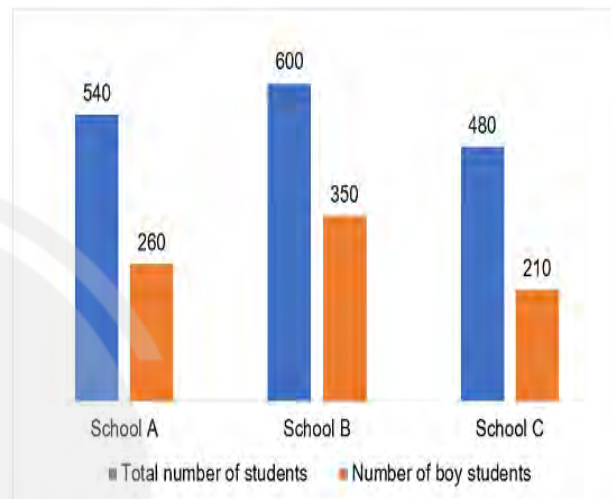
The number of boys in school 'B' who opted maths is how much percent of the number of

girls in school 'B' who opted biology?

- (A) 160% (B) 140%  
(C) 125% (D) 150%  
(E) 170%

**Q28** Directions: Answer the questions based on the information given below.

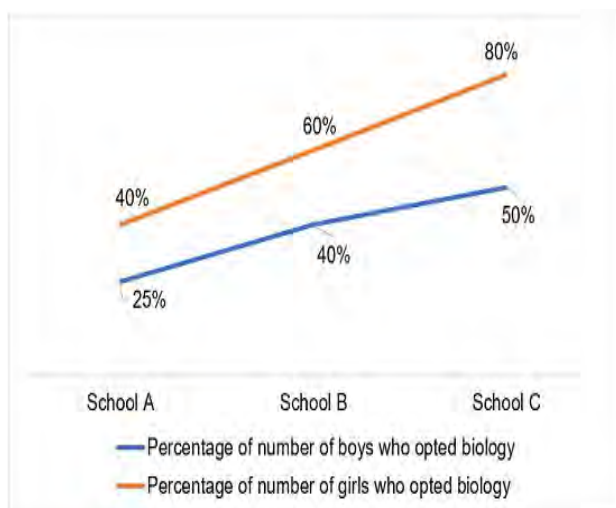
The bar graph given below shows the total number of students (boys + girls) and the number of boys, in 3 different schools.



The line graph given below shows the percentage of number of boys who opted biology and percentage of number of girls who opted biology out of total number of boys and total number of girls, respectively, in each of the 3 schools.

Note: - Each student has to opt for exactly one subject between biology and maths.



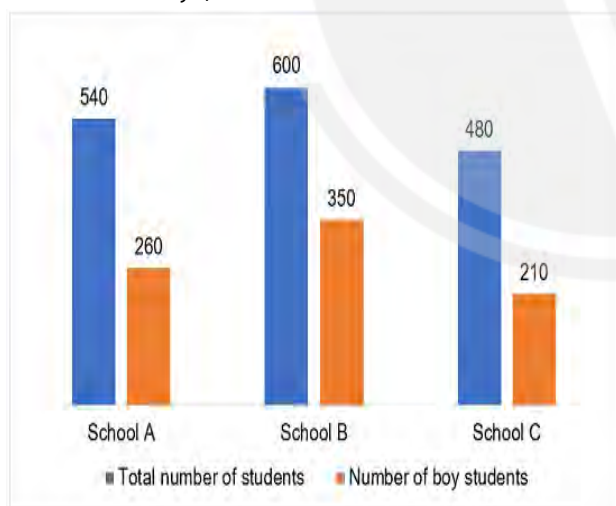


Find the sum of number of boys from school's 'A' and 'C' together, who opted biology.

- (A) 170 (B) 190  
(C) 134 (D) 121  
(E) 175

**Q29** Directions: Answer the questions based on the information given below.

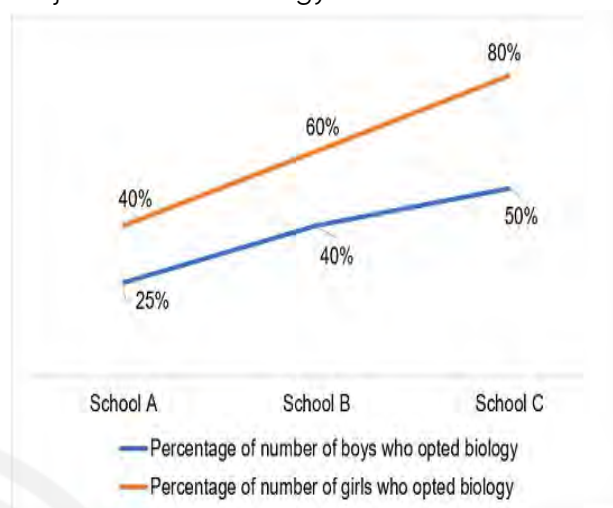
The bar graph given below shows the total number of students (boys + girls) and the number of boys, in 3 different schools.



The line graph given below shows the percentage of number of boys who opted biology and percentage of number of girls who opted biology out of total number of boys and

total number of girls, respectively, in each of the 3 schools.

Note: - Each student has to opt for exactly one subject between biology and maths.

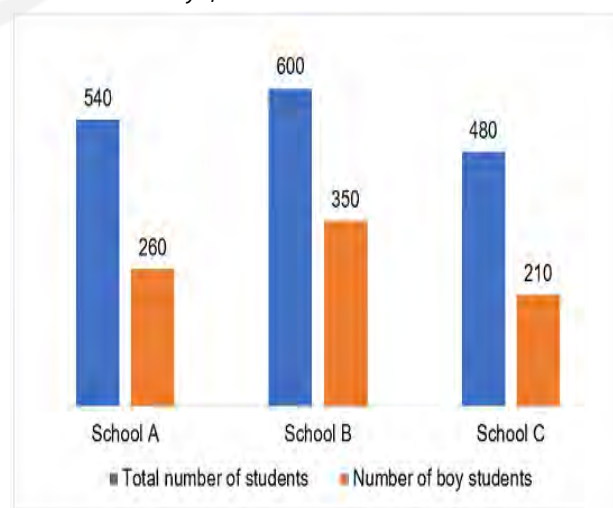


Find the difference between the number of boys in school 'B' who opted maths and the number of girls from the same school who opted maths.

- (A) 170 (B) 145  
(C) 110 (D) 130  
(E) 120

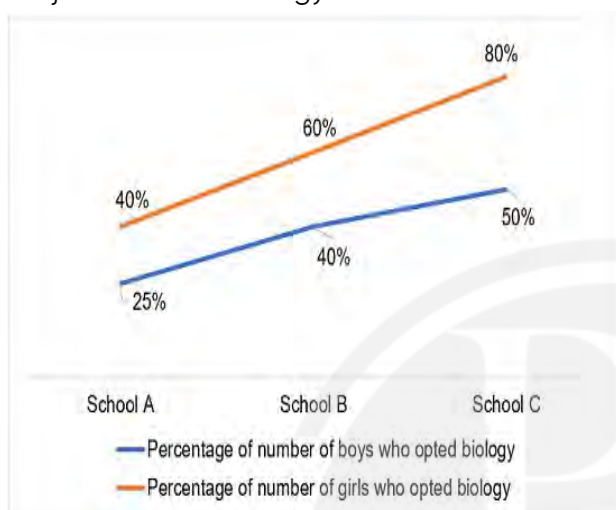
**Q30** Directions: Answer the questions based on the information given below.

The bar graph given below shows the total number of students (boys + girls) and the number of boys, in 3 different schools.



The line graph given below shows the percentage of number of boys who opted biology and percentage of number of girls who opted biology out of total number of boys and total number of girls, respectively, in each of the 3 schools.

Note: – Each student has to opt for exactly one subject between biology and maths.



Find the sum of number of boys in school 'A' who opted maths and the number of girls in school 'A' who opted biology.

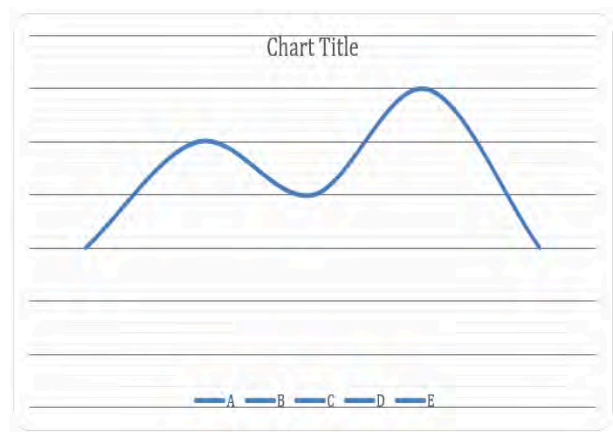
- (A) 223 (B) 456  
(C) 121 (D) 307  
(E) none of these

**Q31 Directions :** Study the following information and answer the following question.

The following table shows the total distance and ratio of the downstream speed to upstream speed of 5 different boats.

Boat	Total distance (Km)	Ratio of upstream to downstream distance
A	1256	3 : 5
B	972	7 : 11
C	1120	39 : 31
D	840	13 : 17
E	975	13 : 12

The following line graph shows the speed of the stream in which the boat flows. Total speed of the stream for all boats is 20 km/hr.



If the speed of boat B and boat D are 8 km/hr and 11 km/hr then total time taken by boat B is what percentage less/more than the total time taken by boat D?

- (A) 22% (B) 24%  
(C) 26% (D) 28%  
(E) none of these

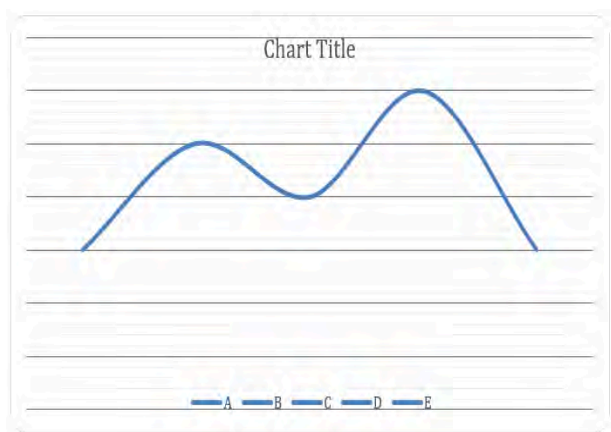
**Q32 Directions :** Study the following information and answer the following question.

The following table shows the total distance and ratio of the downstream speed to upstream speed of 5 different boats.

Boat	Total distance (Km)	Ratio of upstream to downstream distance
A	1256	3 : 5
B	972	7 : 11
C	1120	39 : 31
D	840	13 : 17
E	975	13 : 12

The following line graph shows the speed of stream in which the boat flows. Total speed of stream for all boats is 20 km/hr.





If the speed of boat C is 8 km/hr then find the average speed of the boat C for whole journey.

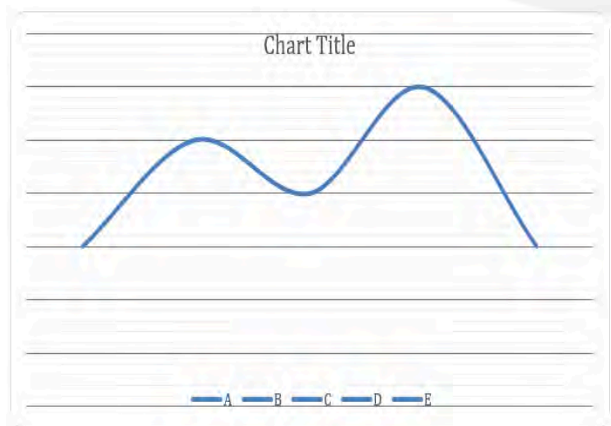
- (A) 3.67 km/hr (B) 4.67 km/hr  
(C) 5.67 km/hr (D) 6.67 km/hr  
(E) none of these

**Q33** Directions : Study the following information and answer the following question.

The following table shows the total distance and ratio of the downstream speed to upstream speed of 5 different boats.

Boat	Total distance (Km)	Ratio of upstream to downstream distance
A	1256	3 : 5
B	972	7 : 11
C	1120	39 : 31
D	840	13 : 17
E	975	13 : 12

The following line graph shows the speed of the stream in which the boat flows. Total speed of the stream for all boats is 20 km/hr.



Speed of boat B is 30% more than the speed of boat D. If the time taken by boat B downstream and boat D upstream is 124 hr then find the speed of boat B.

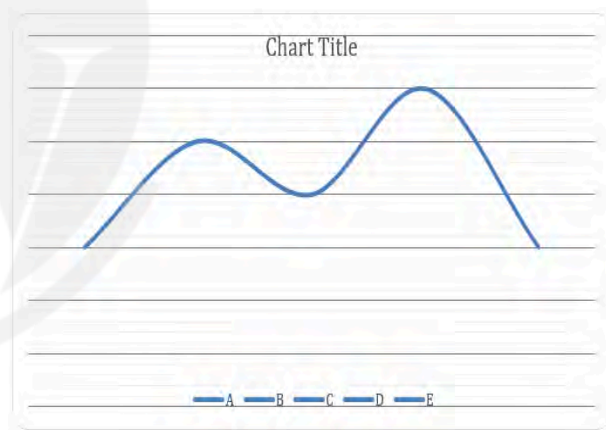
- (A) 8 km/hr (B) 10 km/hr  
(C) 13 km/hr (D) 15 km/hr  
(E) none of these

**Q34** Directions : Study the following information and answer the following question.

The following table shows the total distance and ratio of the downstream speed to upstream speed of 5 different boats.

Boat	Total distance (Km)	Ratio of upstream to downstream distance
A	1256	3 : 5
B	972	7 : 11
C	1120	39 : 31
D	840	13 : 17
E	975	13 : 12

The following line graph shows the speed of the stream in which the boat flows. Total speed of the stream for all boats is 20 km/hr.



If the ratio of the time taken by boat C in upstream to downstream is 78 : 31 then find the speed

- (A) 9 km/hr (B) 10 km/hr  
(C) 11 km/hr (D) 12 km/hr  
(E) none of these

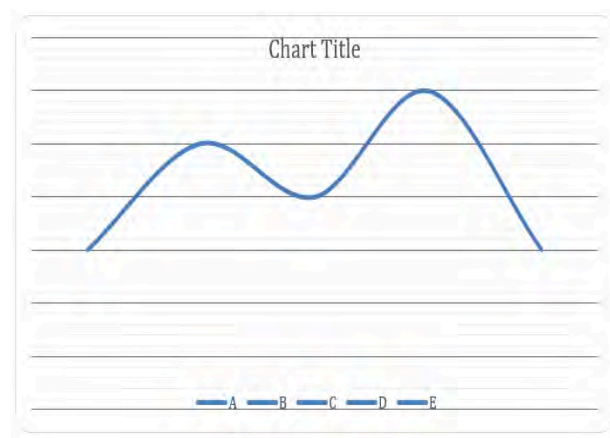
**Q35** Directions : Study the following information and answer the following question.



The following table shows the total distance and ratio of the downstream speed to upstream speed of 5 different boats.

Boat	Total distance (Km)	Ratio of upstream to downstream distance
A	1256	$\frac{3}{5}$
B	972	$\frac{7}{11}$
C	1120	$\frac{39}{31}$
D	840	$\frac{13}{17}$
E	975	$\frac{13}{12}$

The following line graph shows the speed of the stream in which the boat flows. Total speed of the stream for all boats is 20 km/hr.



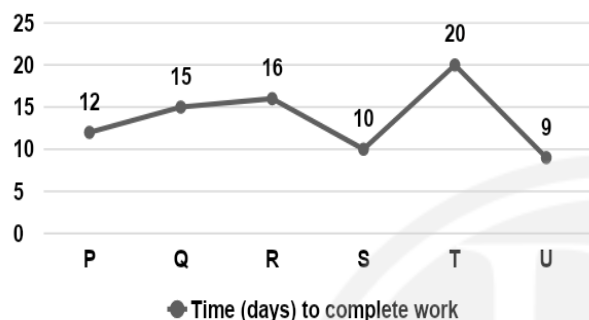
The difference of the time taken by Boat B to cover upstream distance and downstream distance is 4.5 hours then find the time taken by boat B to cover the 225 km distance downstream.

- (A) 9.5 hr (B) 10.23 hr  
 (C) 11.33 hr (D) 12.46 hr  
 (E) none of these

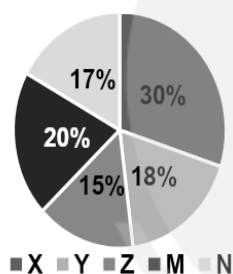


## Level-2

- Q1** Pie-chart 1 shows the different days 6 different workers – P, Q, R, S, T and U – take to finish a same piece of work, whereas pie-chart 2 shows the break-up of the piece of work. Use the information given in the charts to answer the questions that follow.



Distribution of the piece of work

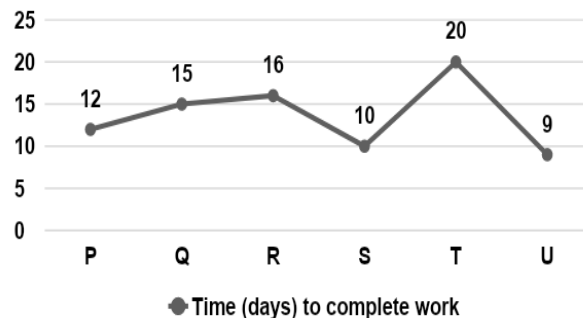


P, Q, R, S, T and U all decided to work for 1 day in the same order i.e. day 1 – P works alone, day 2 – Q works alone... day 6 – U works alone, day 7 – P works alone and so on. Who will finish the work finally?

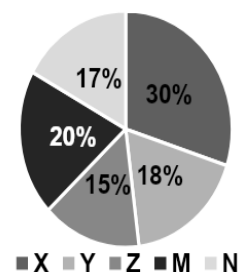
- (A) S (B) U  
(C) Q (D) T  
(E) P

- Q2** Pie-chart 1 shows the different days 6 different workers – P, Q, R, S, T and U – take to finish a same piece of work, whereas pie-chart 2 shows the break-up of the piece of work. Use the

information given in the charts to answer the questions that follow.



Distribution of the piece of work



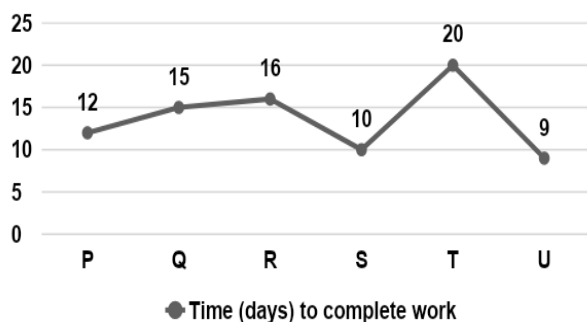
One day Q and R have a competition. Q will complete Y while R will complete N from scratch. Who is the winner?

- (A) Q is winner  
(B) R is winner  
(C) Both finish work at the same time  
(D) Data inadequate  
(E) none of these

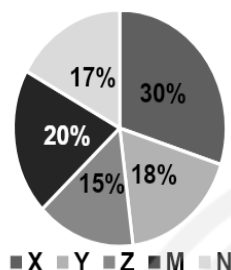
- Q3** Pie-chart 1 shows the different days 6 different workers – P, Q, R, S, T and U – take to finish a same piece of work, whereas pie-chart 2 shows the break-up of the piece of work. Use the information given in the charts to answer the questions that follow.







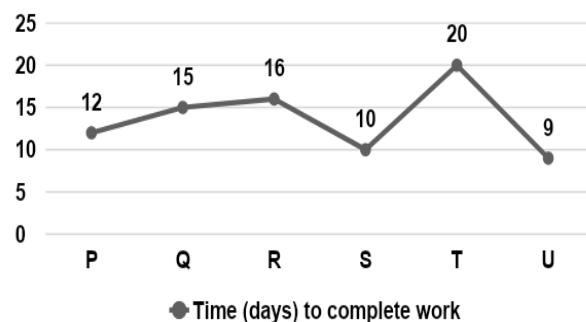
Distribution of the piece of work



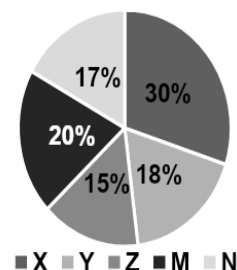
S and T decide to complete the Z and Y works which was 1 quarter done and 3-quarters left. How many days will they take to finish the works?

- (A) 2.4 days                      (B) 1.65 days  
 (C) 1.12 days                  (D) 2.45 days  
 (E) 3.5 days

**Q4** Pie-chart 1 shows the different days 6 different workers – P, Q, R, S, T and U – take to finish a same piece of work, whereas pie-chart 2 shows the break-up of the piece of work. Use the information given in the charts to answer the questions that follow.



Distribution of the piece of work

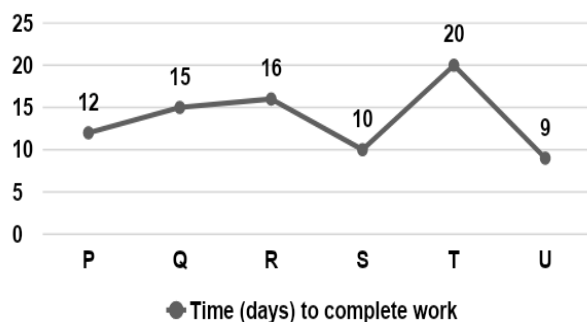


R and T start working on the complete project alone. After working for 8 days, they stopped working and quit. So S was roped in to complete the remaining work. How many days will S take to finish?

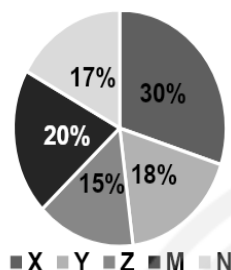
- (A) 2.5 days                      (B) 1.5 days  
 (C) 3 days                        (D) 1 day  
 (E) 2 day

**Q5** Pie-chart 1 shows the different days 6 different workers – P, Q, R, S, T and U – take to finish the same piece of work, whereas pie-chart 2 shows the break-up of the piece of work. Use the information given in the charts to answer the questions that follow.





Distribution of the piece of work

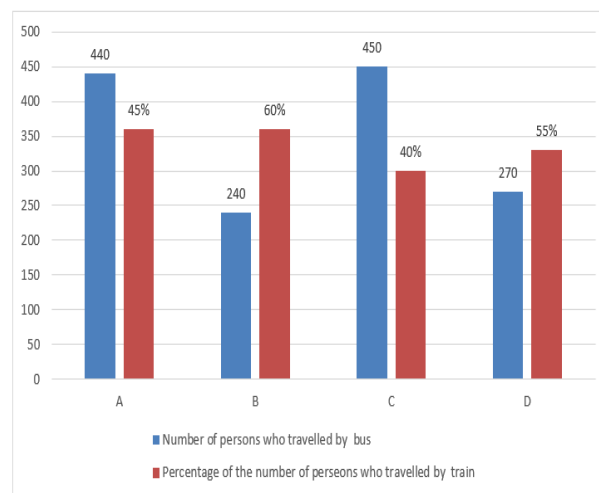


If P, Q, and U work together to finish X and N, how many days will it take to finish it?

- (A) 1.8 days                      (B) 2.1 days  
(C) 2.5 days                      (D) 1.6 days  
(E) 3.1 days

**Q6 Direction :** Study the following information and answer the given question.

Different modes of transportations (bus + train) are used in different cities. The following bar graph shows the number of persons who traveled by bus and percentage of the number of persons who traveled by train out of total persons in respective cities.



The following table shows the ratio of the male to female who traveled by bus and the ratio of the male to female who traveled by train in the respective city.

City	Ratio of the male to female who travelled by bus	Ratio of the male to female who travelled by train
A	6:5	5:4
B	5:3	19:17
C	8:7	3:2
D	5:4	6:5

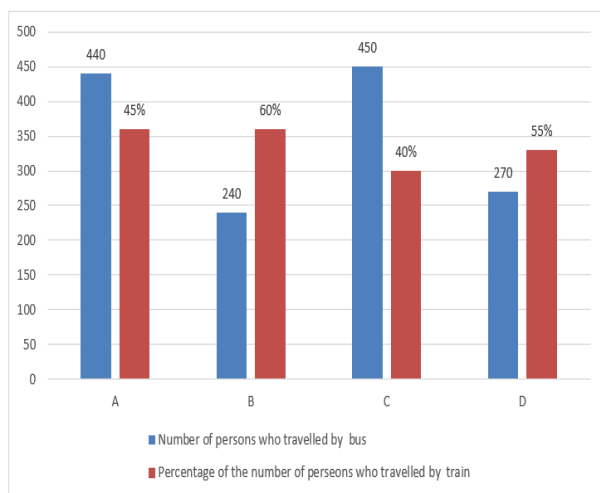
Find the average of number of females who traveled by trains in city A and the number of males who traveled by bus in city C and D together.

- (A) 130                              (B) 140  
(C) 180.75                              (D) 183.33  
(E) none of these

**Q7 Direction :** Study the following information and answer the given question.

Different modes of transportations (bus + train) are used in different cities. The following bar graph shows the number of persons who traveled by bus and percentage of the number of persons who traveled by train out of total persons in respective cities.





The following table shows the ratio of the male to female who traveled by bus and the ratio of the male to female who traveled by train in the respective city.

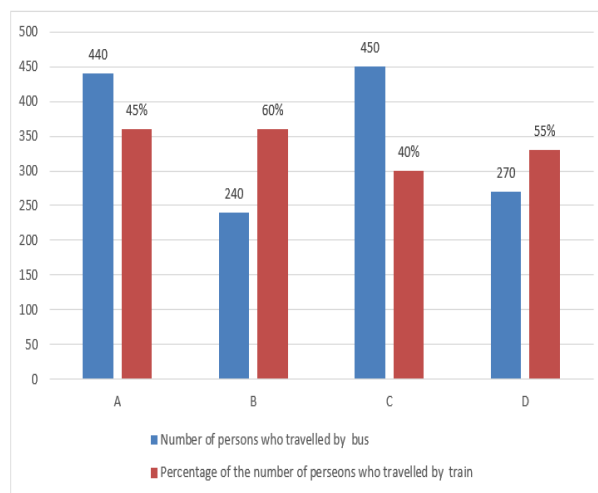
City	Ratio of the male to female who travelled by bus	Ratio of the male to female who travelled by train
A	6:5	5:4
B	5:3	19:17
C	8:7	3:2
D	5:4	6:5

Number of males who traveled by bus in city C is how much percent more than the number of the females who traveled by train in city D?

- (A) 40%                      (B) 60%  
 (C) 50%                      (D) 75%  
 (E) none of these

**Q8 Direction :** Study the following information and answer the given question.

Different modes of transportations (bus + train) are used in different cities. The following bar graph shows the number of persons who traveled by bus and percentage of the number of persons who traveled by train out of total persons in respective cities.



The following table shows the ratio of the male to female who traveled by bus and the ratio of the male to female who traveled by train in the respective city.

City	Ratio of the male to female who travelled by bus	Ratio of the male to female who travelled by train
A	6:5	5:4
B	5:3	19:17
C	8:7	3:2
D	5:4	6:5

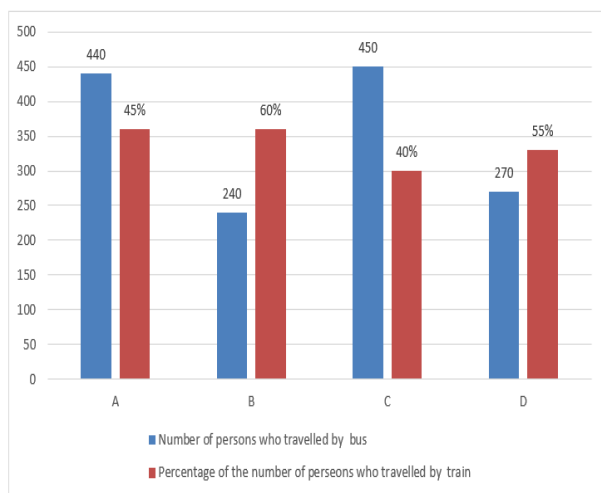
Find the total number of males who traveled by bus in city A and B and number of females who traveled by train in city C and D.

- (A) 660                      (B) 740  
 (C) 580                      (D) 520  
 (E) 500

**Q9 Direction :** Study the following information and answer the given question.

Different modes of transportations (bus + train) are used in different cities. The following bar graph shows the number of persons who traveled by bus and percentage of the number of persons who traveled by train out of total persons in respective cities.





The following table shows the ratio of the male to female who traveled by bus and the ratio of the male to female who traveled by train in the respective city.

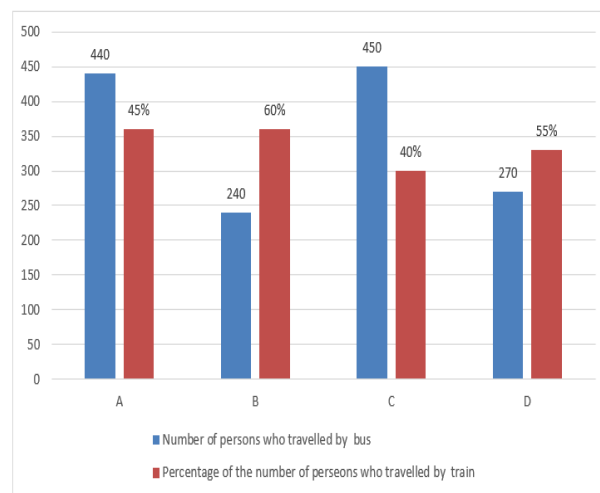
City	Ratio of the male to female who travelled by bus	Ratio of the male to female who travelled by train
A	6:5	5:4
B	5:3	19:17
C	8:7	3:2
D	5:4	6:5

If in city A, the cost of a train ticket is Rs 24 and cost of a bus ticket is Rs 30, then how much revenue is collected from the tickets of persons traveling in bus and trains?

- (A) Rs. 21680                      (B) Rs. 20240  
 (C) Rs. 21820                      (D) Rs. 20960  
 (E) Rs 21840

**Q10 Direction : Study the following information and answer the given question.**

**Different modes of transportations (bus + train) are used in different cities. The following bar graph shows the number of persons who traveled by bus and percentage of the number of persons who traveled by train out of total persons in respective cities.**



The following table shows the ratio of the male to female who traveled by bus and the ratio of the male to female who traveled by train in the respective city.

City	Ratio of the male to female who travelled by bus	Ratio of the male to female who travelled by train
A	6:5	5:4
B	5:3	19:17
C	8:7	3:2
D	5:4	6:5

Find the ratio of the number of females who traveled by bus in city A to number of males who traveled by train in city C and D together.

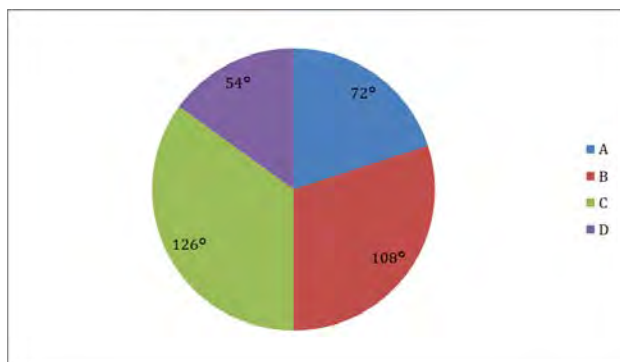
- (A) 3:5                                      (B) 4:7  
 (C) 5:9                                      (D) 2:3  
 (E) 2:7

**Q11 Direction: Study the data carefully and answer the following questions.**

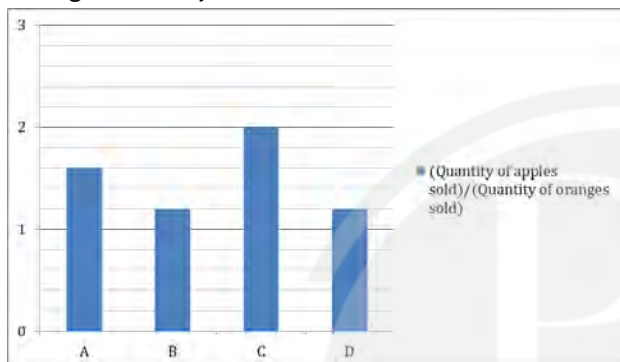
Data given below is related to quantity of apples and oranges (in kg) sold by 4 street vendors A, B, C and D on a particular day.

Pie chart given below shows the degree distribution of quantity of apples sold by each of the given street vendors.





Bar graph given below shows the ratio of quantity of apples sold to the quantity of oranges sold by each street vendor.



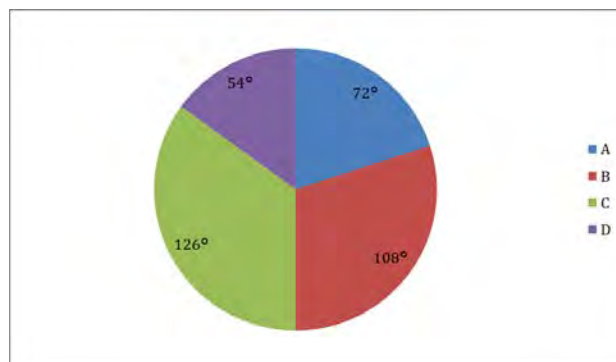
If difference between the quantities of apples sold by B and C is 4 kg, then find the total quantity of oranges sold by A and B?

- (A) 34 kg                      (B) 28 kg  
(C) 30 kg                      (D) 32 kg  
(E) 24 kg

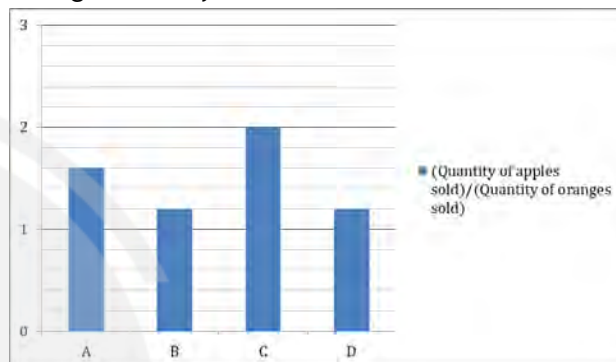
**Q12 Direction: Study the data carefully and answer the following questions.**

Data given below is related to quantity of apples and oranges sold by 4 streetvenders A, B, C and D on a particular day.

Pie chart given below shows the degree distribution of quantity of apples sold by each of the given street vendors.



Bar graph given below shows the ratio of quantity of apples sold to the quantity of oranges sold by each street vendor.



If quantity of oranges sold by A is 15 kg, then find the average quantity of apples sold by B, C and D?

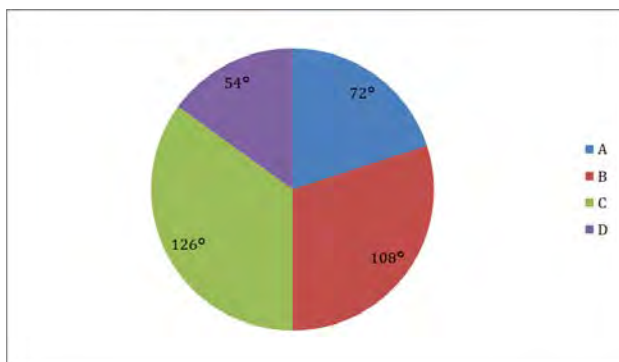
- (A) 34 kg                      (B) 28 kg  
(C) 30 kg                      (D) 32 kg  
(E) 24 kg

**Q13 Direction: Study the data carefully and answer the following questions.**

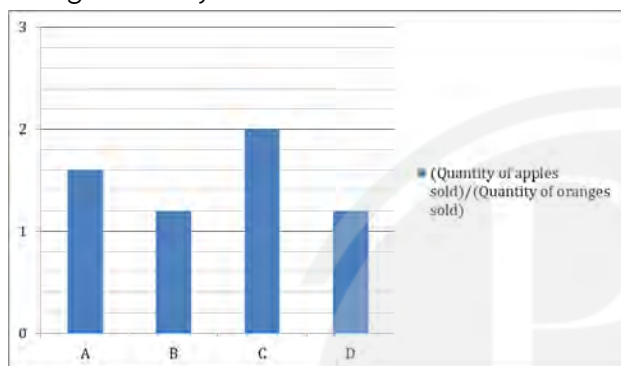
Data given below is related to quantity of apples and oranges sold by 4 streetvenders A, B, C and D on a particular day.

Pie chart given below shows the degree distribution of quantity of apples sold by each of the given street vendors.





Bar graph given below shows the ratio of quantity of apples sold to the quantity of oranges sold by each street vendor.



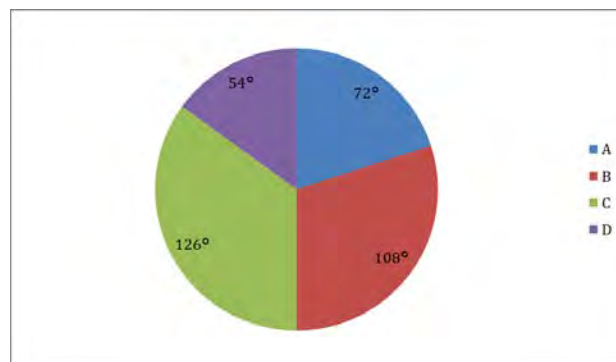
Find the ratio of total quantity of apples sold by A and B together to the total quantity of oranges sold by C and D together?

- (A) 18: 13                      (B) 5: 3  
(C) 15: 11                     (D) 12: 7  
(E) 6:5

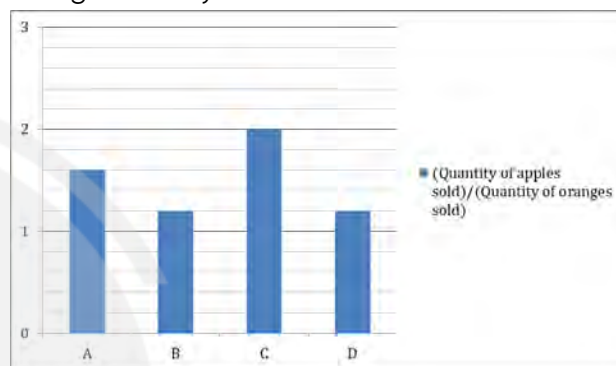
**Q14 Direction: Study the data carefully and answer the following questions.**

Data given below is related to quantity of apples and oranges sold by 4 streetvenders A, B, C and D on a particular day.

Pie chart given below shows the degree distribution of quantity of apples sold by each of the given street vendors.



Bar graph given below shows the ratio of quantity of apples sold to the quantity of oranges sold by each street vendor.



If quantity of oranges sold by E is 8 kg and average quantity of oranges sold by A, B, C, D and E is 7 kg, then what will be the sum of the given pie chart?

- (A) 34 kg                      (B) 30 kg  
(C) 36 kg                     (D) 32 kg  
(E) 40 kg

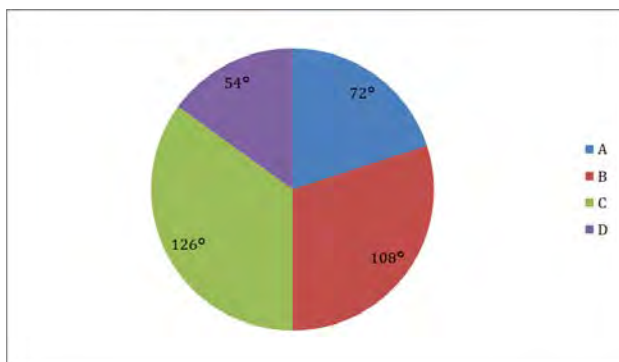
**Q15 Direction: Study the data carefully and answer the following questions.**

Data given below is related to quantity of apples and oranges sold by 4 streetvenders A, B, C and D on a particular day.

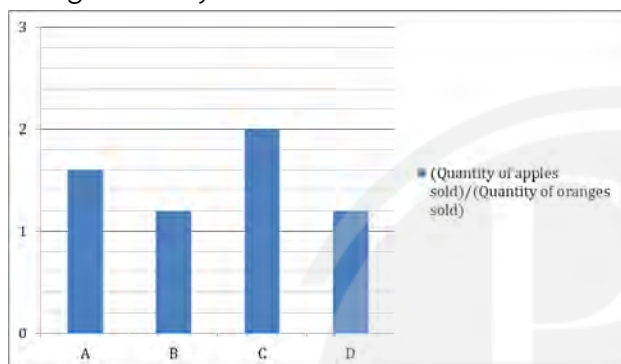
Pie chart given below shows the degree distribution of quantity of apples sold by each of the given street vendors.







Bar graph given below shows the ratio of quantity of apples sold to the quantity of oranges sold by each street vendor.

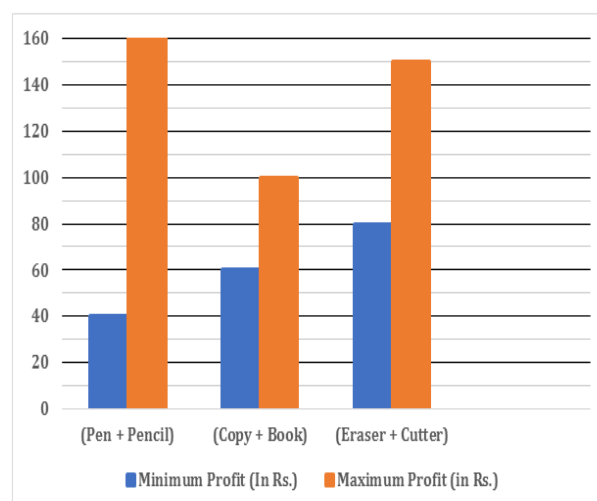


If difference between the quantities of apples and oranges sold by A is 6 kg, then find the difference between the total quantity of apples sold by A, B, C and D together and total quantity of oranges sold by A, B, C and D together?

- (A) 20 kg                      (B) 15 kg  
(C) 26 kg                      (D) 18 kg  
(E) 24 kg

**Q16 (Direction : Read the given information carefully and answer the question that follows.**

Mohit a stationary shopkeeper sold six different articles in two articles pairs. The bar graph given below shows minimum profit (In Rs.) and maximum profit (In Rs.) obtained by Mohit on each pair and table shows minimum discount (In Rs.) allowed by Mohit on each pair. Read the data carefully and answer the questions.



Article Pairs	Minimum discount (in Rs.)
(Pen + Pencil)	80
(Copy + Book)	60
(Eraser + Cutter)	70

Note: Total profit or discount on any pair = Total discount or profit on both article of that pair combined

Cost price of pen is  $16\frac{2}{3}\%$  more than cost price of pencil and total profit earned by Mohit on pen is Rs. 60 at selling the pair at minimum profit. If the ratio of selling price of pencil to pen is 7 : 9 and marked price of pen is Rs. 1050, then find total discount allowed on pencil is what percent of total discount allowed on pen.

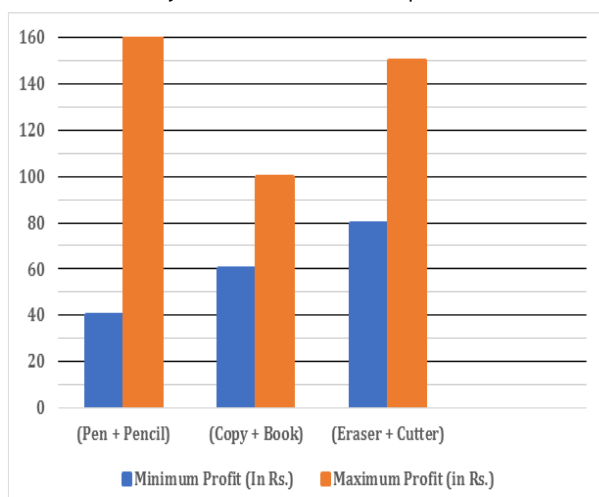
- (A)  $35\frac{2}{3}\%$   
(B)  $34\frac{1}{3}\%$   
(C)  $33\frac{1}{3}\%$   
(D) 35%  
(E) None of these

**Q17 (Direction : read the given information carefully and answer the question that follows.**

Mohit a stationary shopkeeper sold six different articles in two articles pairs. The bar graph given below shows minimum profit (In Rs.) and maximum profit (In Rs.) obtained by Mohit on each pair and table shows minimum discount



(In Rs.) allowed by Mohit on each pair. Read the data carefully and answer the questions.



Article Pairs	Minimum discount (in Rs.)
(Pen + Pencil)	80
(Copy + Book)	60
(Eraser +Cutter)	70

Note: Total profit or discount on any pair = Total discount or profit on both article of that pair combined

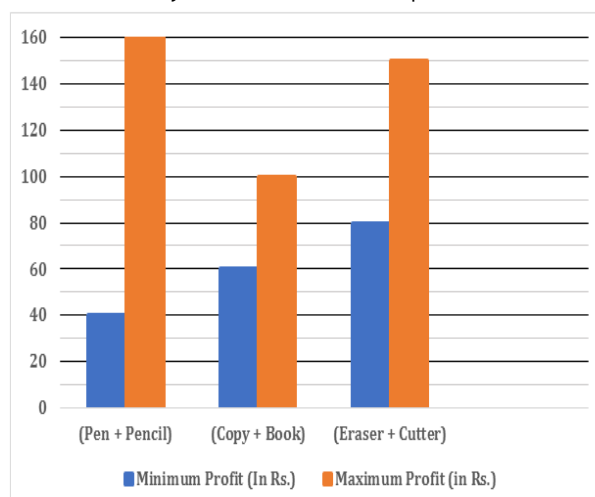
Mohit sold pair of (Copy + Book) at minimum profit and he sold book at the loss of Rs. 16 after allowing a discount of Rs. 44. If total cost price of this pair is Rs. 800 and the ratio of marked price of book to that of copy is 5 : 3, then find the ratio of cost price of copy to that of book?

- (A) 57 : 143                      (B) 56 : 133  
 (C) 143 : 157                    (D) 145 : 167  
 (E) 143 : 167

**Q18** (Direction : read the given information carefully and answer the question that follows.

Mohit a stationary shopkeeper sold six different articles in two articles pairs. The bar graph given below shows minimum profit (In Rs.) and maximum profit (In Rs.) obtained by Mohit on each pair and table shows minimum discount

(In Rs.) allowed by Mohit on each pair. Read the data carefully and answer the questions.



Article Pairs	Minimum discount (in Rs.)
(Pen + Pencil)	80
(Copy + Book)	60
(Eraser +Cutter)	70

Note: Total profit or discount on any pair = Total discount or profit on both article of that pair combined

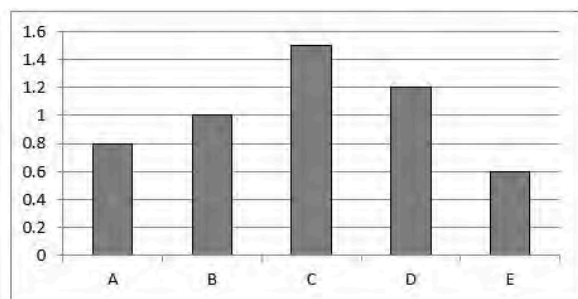
Mohit sold pair of (Eraser +Cutter) at minimum discount and he marked up eraser at  $\frac{1}{4}$  th above the cost price. Mohit allowed discount of 10% on eraser & cutter sold at 25% profit and the ratio of marked price of eraser to that of cutter is 25 : 26. If eraser sold at the profit of Rs. 48 and cutter sold at the loss of Rs. 120, then find the difference between selling price of eraser & cutter

- (A) Rs.164                      (B) Rs.166  
 (C) Rs.168                    (D) Rs.170  
 (E) Rs.175

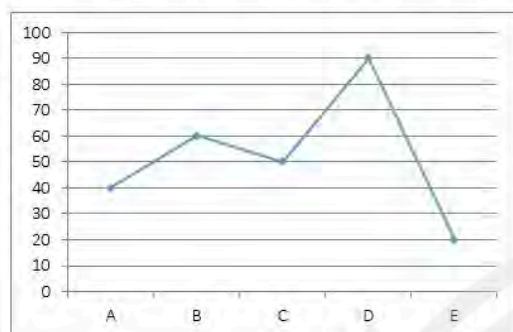
**Directions (19-23)** Read the following passage and answer the given questions.

**Directions:** Given bar graph shows the ratio of the selling price of two articles (X and Y) sold by five shopkeepers.





Line-graph shows the profit earned by five shopkeepers on article X.



**Q19** The cost price of X and Y for shopkeeper C is the same. Find the profit percent earned by shopkeeper C in article Y.

- (A) 0% (B) 1%  
(C) 5% (D) 10%  
(E) 20%

**Q20** Shopkeeper D earns 540 rupees on selling each article. CP of article Y is what of C.P. of article X.

- (A) 72.53% (B) 68.33%  
(C) 78.56% (D) 70.50%  
(E) None of these

**Q21** If the C.P. of article X is the same for shopkeepers A and E and the profit earned on selling both articles is the same for both shopkeepers. What is the ratio of profit earned by shopkeeper A to E in article Y?

- (A) 8: 3 (B) 5: 2  
(C) 4: 1 (D) 3: 1  
(E) None of these

**Q22** The ratio of profit earned of selling article X to Y by shopkeeper E is 4 : 5. What is the overall profit percentage of the shopkeeper? (approx)

- (A) 12% (B) 16%  
(C) 14% (D) 18%  
(E) None of these

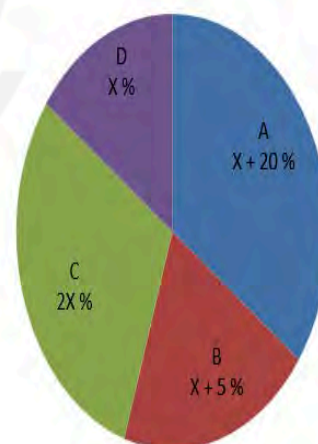
**Q23** If the profit earned on selling article X be shopkeepers B and C is the same, then what is the ratio of the selling price of article Y for shopkeepers B and C?

- (A) 1: 2 (B) 4: 3  
(C) 5: 3 (D) 7: 3  
(E) 7: 4

**Q24** Direction : Read the data carefully and answer the questions.

The pie-chart given below shows distribution of bikes (petrol + electric) in four different showrooms.

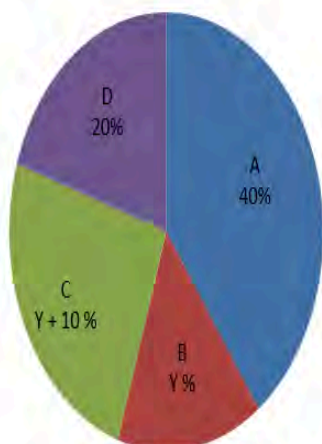
Total number of bikes = 5500



The following pie-chart shows the distribution of electric bikes in four different showrooms.



Total number of electric bikes = 1500



The following table shows the ratio of sold and unsold bikes of different showrooms.

Showrooms	Ratio of sold and unsold electric bikes	Ratio of unsold and sold petrol bikes
A	$\frac{7}{3}$	$\frac{1}{4}$
B	$\frac{4}{1}$	$\frac{2}{5}$
C	$\frac{3}{2}$	$\frac{4}{11}$
D	$\frac{3}{1}$	$\frac{1}{6}$

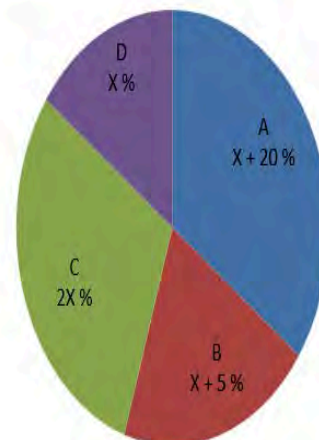
Total number of petrol bikes sold by showroom B is how much percent of the total number of bikes in showroom B? (up to 2-decimal digit)

- (A) 57.42                      (B) 55.15  
 (C) 55.76                      (D) 56.81  
 (E) none of these

**Q25 Direction :** Read the data carefully and answer the questions.

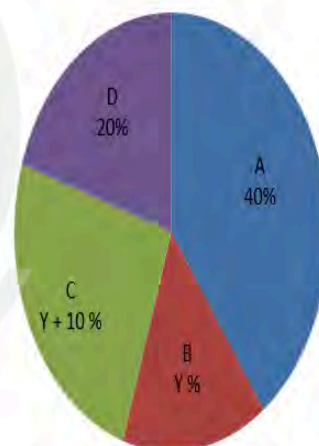
The pie-chart given below shows distribution of bikes (petrol + electric) in four different showrooms.

Total number of bikes = 5500



The following pie-chart shows the distribution of electric bikes in four different showrooms.

Total number of electric bikes = 1500



The following table shows the ratio of sold and unsold bikes of different showrooms.

Showrooms	Ratio of sold and unsold electric bikes	Ratio of unsold and sold petrol bikes
A	$\frac{7}{3}$	$\frac{1}{4}$
B	$\frac{4}{1}$	$\frac{2}{5}$
C	$\frac{3}{2}$	$\frac{4}{11}$
D	$\frac{3}{1}$	$\frac{1}{6}$

Find the ratio between the total number of unsold petrol bikes in showroom A and D



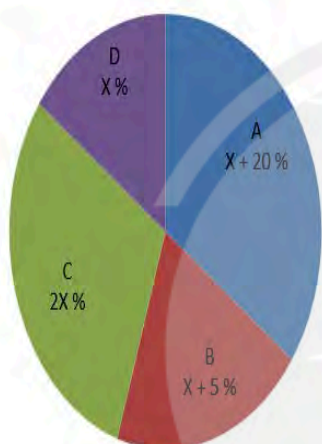
together and total number of electric bikes sold by showroom B and C together.

- (A) 62:79 (B) 56:73  
(C) 54:71 (D) 17:30  
(E) none of these

**Q26 Direction :** Read the data carefully and answer the questions.

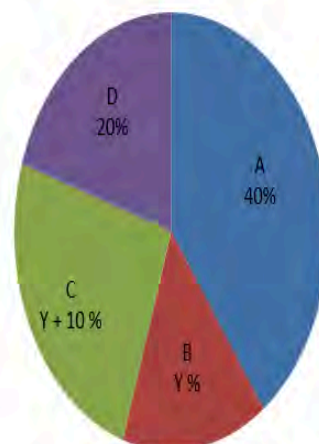
The pie-chart given below shows distribution of bikes (petrol + electric) in four different showrooms.

Total number of bikes = 5500



The following pie-chart shows the distribution of electric bikes in four different showrooms.

Total number of electric bikes = 1500



The following table shows the ratio of sold and unsold bikes of different showrooms.

Showrooms	Ratio of sold and unsold electric bikes	Ratio of unsold and sold petrol bikes
A	$\frac{7}{3}$	$\frac{1}{4}$
B	$\frac{4}{1}$	$\frac{2}{5}$
C	$\frac{3}{2}$	$\frac{4}{11}$
D	$\frac{3}{1}$	$\frac{1}{6}$

If a pie-chart of total petrol bikes of all four showrooms is made, then find the central angle for total petrol bikes in the showroom C.

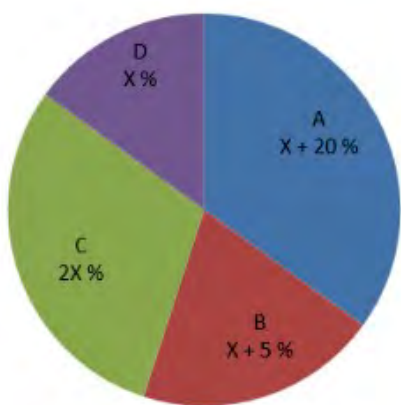
- (A)  $112.25^\circ$  (B)  $114.75^\circ$   
(C)  $117.50^\circ$  (D)  $111.50^\circ$   
(E) none of these

**Q27 Direction :** Read the data carefully and answer the questions.

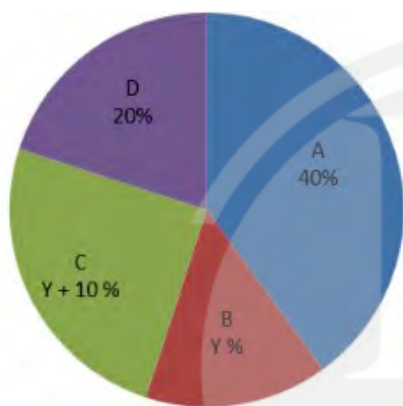
The pie-chart given below shows distribution of bikes (petrol + electric) in four different showrooms.







The following pie-chart shows the distribution of electric bikes in four different showrooms.



The following table shows the ratio of sold and unsold bikes of different showrooms.

Showrooms	Ratio of sold and unsold electric bikes	Ratio of unsold and sold petrol bikes
A	7 : 3	3 : 4
B	4 : 1	2 : 5
C	3 : 2	1 : 11
D	3 : 1	3 : 6

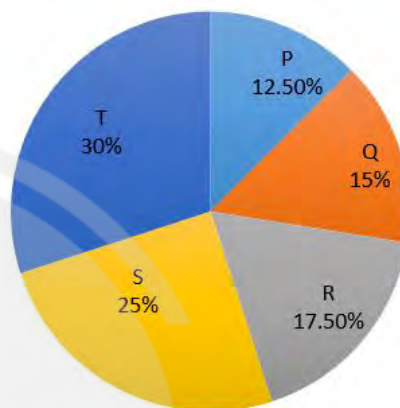
Find the difference between total number of petrol bikes sold by all the four showrooms and total number of electric bikes sold by all the four showrooms.

- (A) 2020 (B) 2060  
(C) 2140 (D) 2180  
(E) None of these

**Directions (28–32)** Read the following passage and answer the given questions.

**Directions:** The pie chart given below shows the total number of candidates who had applied for executive posts in five different MNCs. The table shows the percentage of applications rejected and the percentage of candidates who appeared for MNC interviews out of the total number of applications accepted. Read the data carefully and answer the questions that follow.

**Total number of candidates – 24000**



MNC	% of application Rejected	% of candidates appeared in interview
P	60%	75%
Q	80%	60%
R	70%	75%
S	75%	60%
T	65%	75%

- Q28** If 40% and 20% of the total number of appeared candidates for MNC R and T for executive posts respectively get the desired post, then the total number of candidates that get the desired post in both MNCs is what percentage of the total number of candidates appeared in MNC S for interview of executive post?
- (A) 84% (B) 80%  
(C) 74% (D) 60%  
(E) 90%





**Q29** If 20% of the total appeared candidates in the interview for the executive post in MNC P and  $\frac{2}{9}$ th of the total appeared candidates in the interview for the executive post in MNC S, get the desired post, find the ratio between the number of candidates who get the desired post in MNC P to the number of candidates who get the desired post in MNC S.

- (A) 5: 6 (B) 6: 11  
(C) 5: 10 (D) 9: 10  
(E) 9: 11

**Q30** 25% of the total number of candidates who appeared in the interview for MNC Q got the desired post and out of the total number of candidates who got the desired post, the ratio between the number of girls to that of boys is 4: 5. If out of the total number of candidates applied for executive post for MNC Q, two fifth are girls, then what percentage of total number of applied girls get the desired post?

- (A)  $3\frac{1}{3}\%$  (B)  $6\frac{1}{3}\%$   
(C)  $13\frac{1}{3}\%$  (D)  $9\frac{1}{2}\%$   
(E)  $8\frac{1}{3}\%$

**Q31** Find the difference between the total number of candidates who appeared in interviews for executive posts in MNC P and S.

- (A) 0 (B) 100  
(C) 90 (D) 9  
(E) 8

**Q32** If 20% of the total number of candidates appeared in the interview are selected for the executive post of MNC P, then find the desired post for MNC P?

- (A) 120 (B) 100  
(C) 140 (D) 150  
(E) 180

**Q33** Direction: Study the data carefully and answer the following questions.

Four employees A, B, C and D work in a company. Each of them worked for a different number of days and took a different number of holidays in two different years 2019 and 2020.

Line graph given below shows the ratio of number of days worked for in 2019 to the number of days worked for in 2020 for each employee.

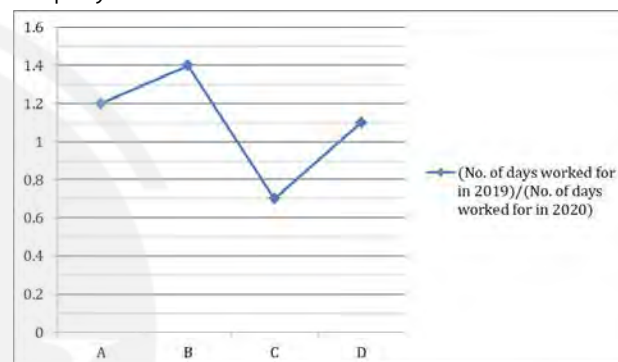


Table given below shows the number of holidays taken by each employee in 2019.

Employee	No. of holidays taken in 2019
A	65
B	85
C	141
D	35

Note: 2019 is a non-leap year and 2020 is a leap year.

Find the difference between total number of holidays taken by all the 4 employees together in 2019 and total number of holidays taken by all the 4 employees together in 2020?

- (A) 71 (B) 63  
(C) 75 (D) 65  
(E) 68



**Q34 Direction: Study the data carefully and answer the following questions.**

Four employees A, B, C and D work in a company. Each of them worked for a different number of days and took a different number of holidays in two different years 2019 and 2020.

Line graph given below shows the ratio of number of days worked for in 2019 to the number of days worked for in 2020 for each employee.

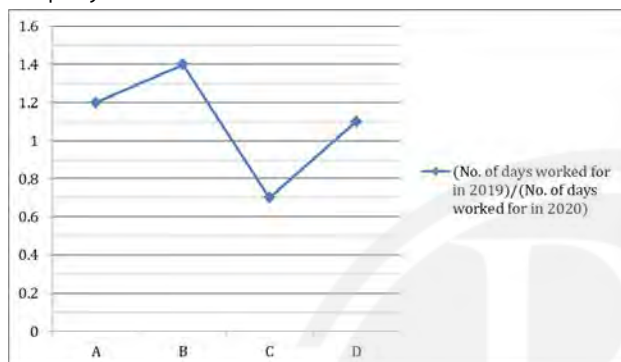


Table given below shows the number of holidays taken by each employee in 2019.

Employee	No. of holidays taken in 2019
A	65
B	85
C	141
D	35

Note: 2019 is a non-leap year and 2020 is a leap year.

Total number of days for which B and D worked in 2019 is what percent more or less than the total number of days for which B and D worked in 2020?

- (A) 24% (B) 28%  
(C) 22% (D) 26%  
(E) None of these

**Q35 Direction: Study the data carefully and answer the following questions.**

Four employees A, B, C and D work in a company. Each of them worked for a different number of days and took a different number of holidays in two different years 2019 and 2020.

Line graph given below shows the ratio of number of days worked for in 2019 to the number of days worked for in 2020 for each employee.

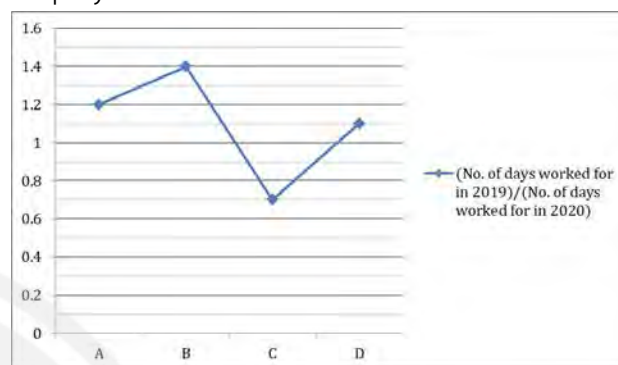


Table given below shows the number of holidays taken by each employee in 2019.

Employee	No. of holidays taken in 2019
A	65
B	85
C	141
D	35

Note: 2019 is a non-leap year and 2020 is a leap year.

If ratio of number of days for which D worked in 2019 to the number of days for which E worked in 2019, is 11: 9 and ratio of number of days for which D worked in 2020 to the number of days for which E worked in 2020 is 15: 14, then find the total number of holidays taken by E in 2019 and 2020 together?

- (A) 171 (B) 181  
(C) 161 (D) 191  
(E) None of these

**Q36 Direction: Study the data carefully and answer the following questions.**



Four employees A, B, C and D work in a company. Each of them worked for a different number of days and took a different number of holidays in two different years 2019 and 2020.

Line graph given below shows the ratio of number of days worked for in 2019 to the number of days worked for in 2020 for each employee.

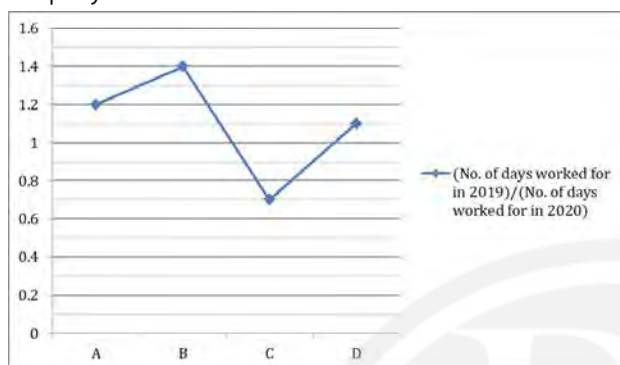


Table given below shows the number of holidays taken by each employee in 2019.

Employee	No. of holidays taken in 2019
A	65
B	85
C	141
D	35

Note: 2019 is a non-leap year and 2020 is a leap year.

Find the difference between total number of holidays taken by all the 4 employees together in 2019 and total number of employees who doesn't taken holidays by all the 4 in 2020?

- (A) 712 (B) 630  
(C) 758 (D) 656  
(E) 744

**Q37 Direction: Study the data carefully and answer the following questions.**

Four employees A, B, C and D work in a company. Each of them worked for a different number of days and took a different number of holidays in two different years 2019 and 2020.

Line graph given below shows the ratio of number of days worked for in 2019 to the number of days worked for in 2020 for each employee.

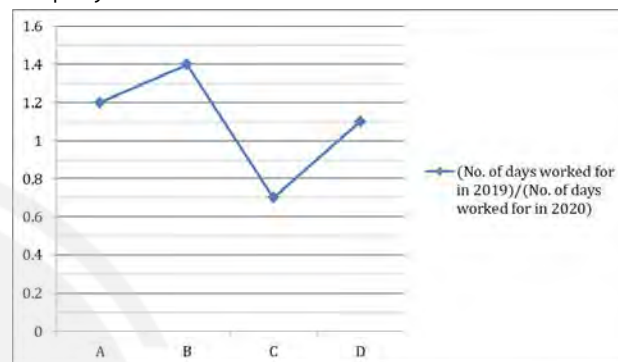


Table given below shows the number of holidays taken by each employee in 2019.

Employee	No. of holidays taken in 2019
A	65
B	85
C	141
D	35

Note: 2019 is a non-leap year and 2020 is a leap year.

Find the average number of holidays taken by A, B and D in 2020?

- (A) 126 (B) 136  
(C) 96 (D) 116  
(E) None of these

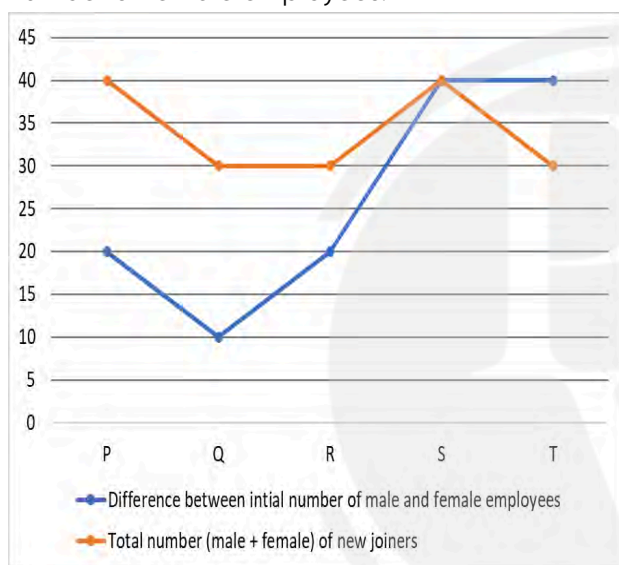


## Level-3

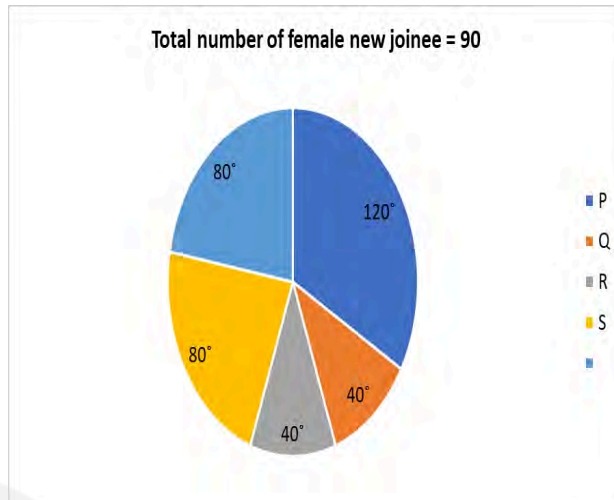
**Q1 Direction:** Read the data carefully and answer the following questions.

There are five companies P, Q, R, S, and T. Line graph given below shows the difference between male and female employees in those companies and the total number of employees who joined those companies.

Note: Total initial number of male employees in any company is more than the total initial number of female employees.



Pie chart given below shows the degree distribution of the number of female new joiners in the 5 companies.



If the ratio of total initial number of male to female employees in company P is 9: 7, then find the total number of employees in that company after new employees joined the company.

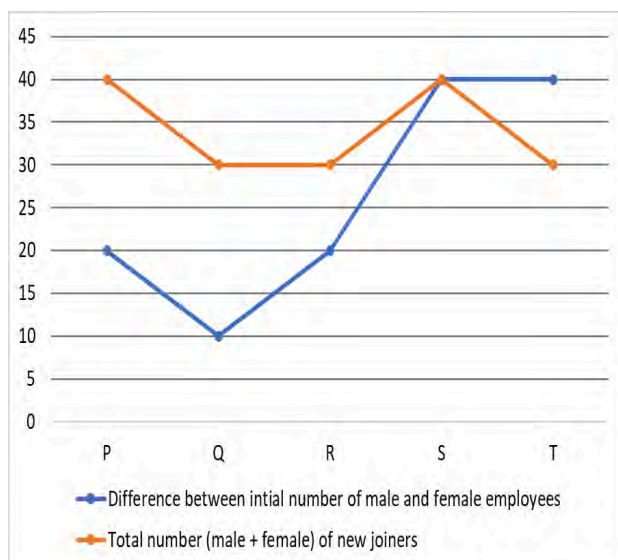
- (A) 180 (B) 200  
(C) 160 (D) 240  
(E) None of these

**Q2 Direction:** Read the data carefully and answer the following questions.

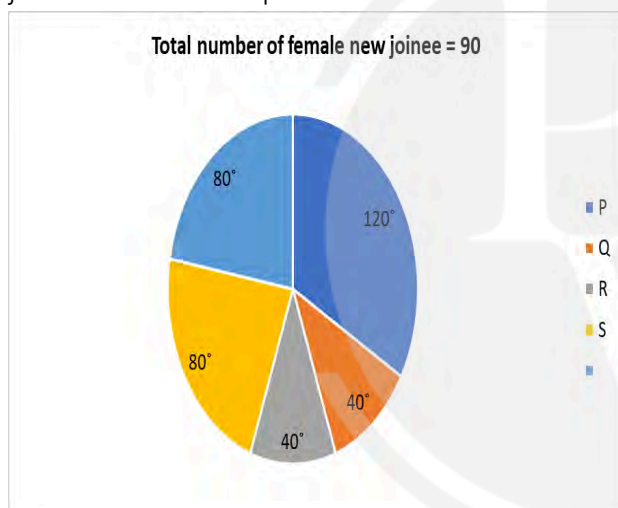
There are five companies P, Q, R, S, and T. Line graph given below shows the difference between male and female employees in those companies and the total number of employees who joined those companies.

Note: Total initial number of male employees in any company is more than the total initial number of female employees.





Pie chart given below shows the degree distribution of the number of female new joiners in the 5 companies.



If after joining the new employees in company T, total employees in the company becomes 150, the out of total initial employees in that company what percent are female employees?

- (A) 25%
- (B) 30%
- (C)  $26\frac{2}{3}\%$
- (D)  $16\frac{2}{3}\%$
- (E)  $33\frac{1}{3}\%$

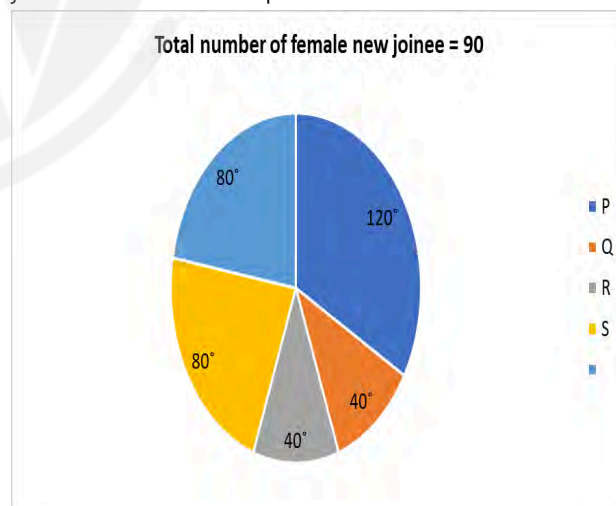
**Q3 Direction:** Read the data carefully and answer the following questions.

There are five companies P, Q, R, S, and T. Line graph given below shows the difference between male and female employees in those companies and the total number of employees who joined those companies.

Note: Total initial number of male employees in any company is more than the total initial number of female employees.



Pie chart given below shows the degree distribution of the number of female new joiners in the 5 companies.



If the total initial number of female employees in companies P and R together is 110 while the ratio of number of male employees to female



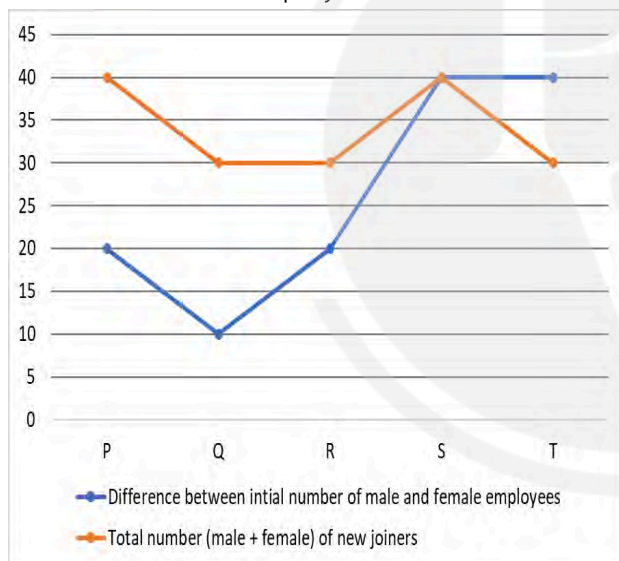
employees in company R after joining the new employees becomes 3: 2, then find the ratio of initial number of male to female employees in company P.

- (A) 3: 2                      (B) 7: 5  
(C) 5: 3                      (D) 4: 3  
(E) 5:7

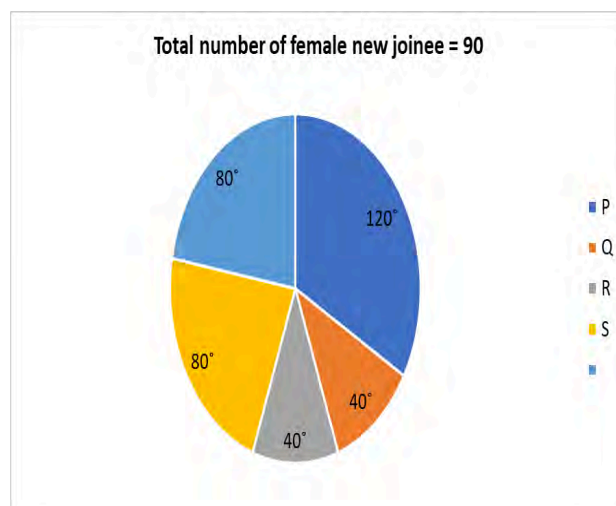
**Q4 Direction:** Read the data carefully and answer the following questions.

There are five companies P, Q, R, S, and T. Line graph given below shows the difference between male and female employees in those companies and the total number of employees who joined those companies.

Note: Total initial number of male employees in any company is more than the total initial number of female employees.



Pie chart given below shows the degree distribution of the number of female new joiners in the 5 companies.



Ratio of initial number of male to female employees in company R is 7: 5 and total initial number of employees in company R is 40 less than that in company S. Find that new joiners in company S are what fraction of the initial number of employees in that company?

- (A)  $\frac{1}{2}$   
(B)  $\frac{3}{8}$   
(C)  $\frac{1}{4}$   
(D)  $\frac{5}{16}$   
(E)  $\frac{1}{2}$

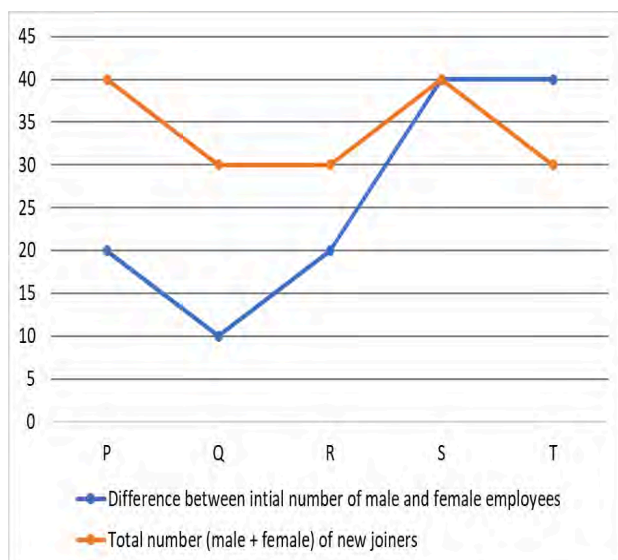
**Q5 Direction:** Read the data carefully and answer the following questions.

There are five companies P, Q, R, S, and T. Line graph given below shows the difference between male and female employees in those companies and the total number of employees who joined those companies.

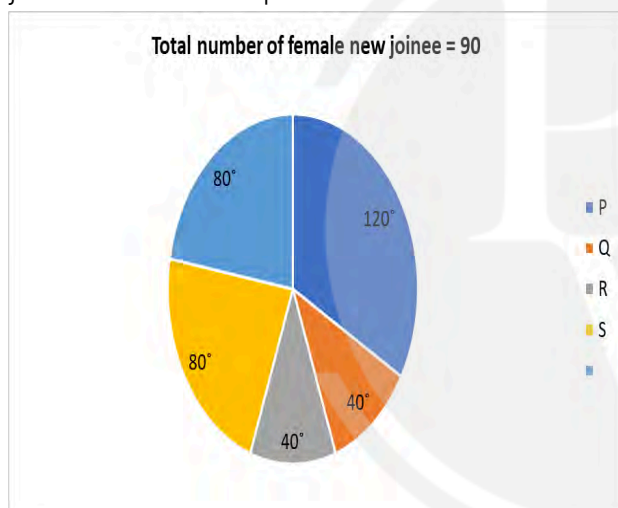
Note: Total initial number of male employees in any company is more than the total initial number of female employees.







Pie chart given below shows the degree distribution of the number of female new joiners in the 5 companies.



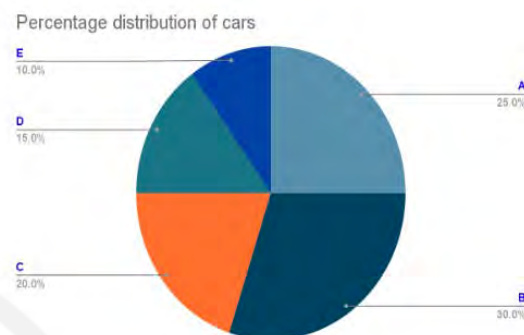
If after joining new employees in company Q, the ratio of male to female employees becomes 4: 3 and the initial ratio of male to female employees in company Q is M: 15, then find the value of 'M'.

- (A) 18 (B) 21  
(C) 16 (D) 20  
(E) 24

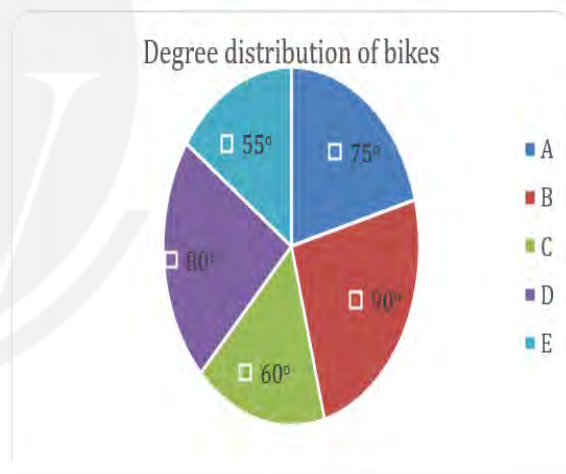
**Q6 Directions :** Study the following information and answer the following questions.

Different numbers of cars and bikes sold by five different showrooms. Total number of bikes and cars sold by all showrooms together is 6600 and the ratio of cars to bikes sold by all showrooms together is 2 : 9.

The following pie chart shows the percentage distribution of the cars sold by different showrooms.



The following pie chart shows the degree distribution of bikes sold by different showrooms.



Showroom	Ratio of the number of petrol bikes to electric bikes	Percentage of the number of petrol cars
A	7 : 8	40%
B	2 : 3	35%
C	5 : 4	55%
D	3 : 5	60%
E	3 : 2	40%

Find the ratio of the average of the number of petrol cars sold by showroom A, C and E





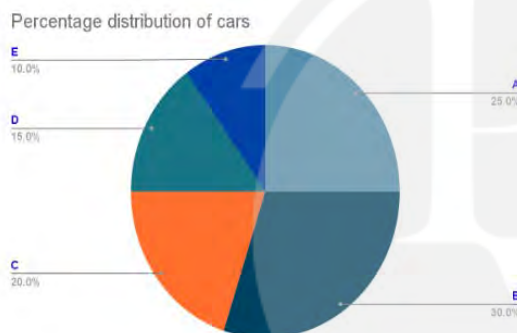
together to the average number of petrol bikes sold by showroom C and D together.

- (A) 2:13                      (B) 3:16  
(C) 4:19                      (D) 5:21  
(E) none of these

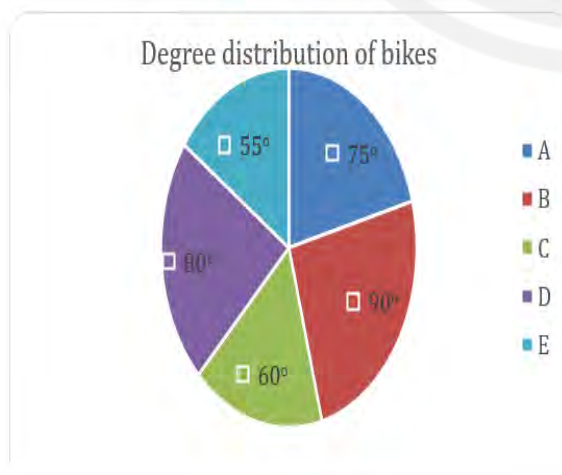
**Q7 Directions :** Study the following information and answer the following questions.

Different numbers of cars and bikes sold by five different showrooms. Total number of bikes and cars sold by all showrooms together is 6600 and the ratio of cars to bikes sold by all showrooms together is 2 : 9.

The following pie chart shows the percentage distribution of the cars sold by different showrooms.



The following pie chart shows the degree distribution of bikes sold by different showrooms.



Showroom	Ratio of the number of petrol bikes to electric bikes	Percentage of the number of petrol cars
A	7 : 8	40%
B	2 : 3	35%
C	5 : 4	55%
D	3 : 5	60%
E	3 : 2	40%

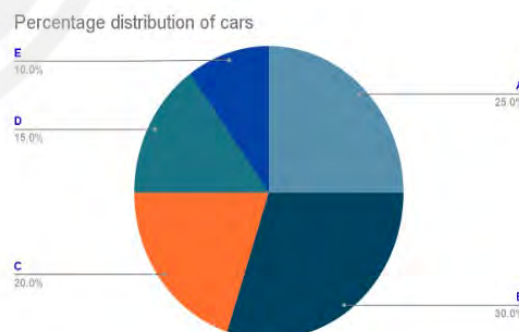
If number of electric bikes sold by showroom F is 40% more the number of electric bikes sold by showroom B and E together and ratio of the electric to petrol bike sold by showroom F is 12 : 17 then find the total number of bikes sold by showroom F

- (A) 3827                      (B) 3847  
(C) 3867                      (D) 3887  
(E) 3857

**Q8 Directions :** Study the following information and answer the following questions.

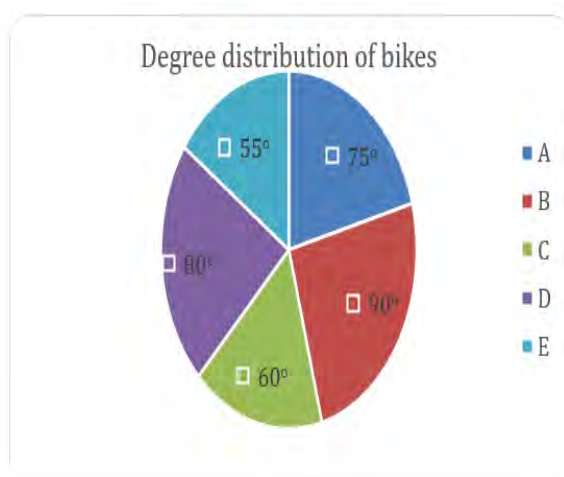
Different numbers of cars and bikes sold by five different showrooms. Total number of bikes and cars sold by all showrooms together is 6600 and the ratio of cars to bikes sold by all showrooms together is 2 : 9.

The following pie chart shows the percentage distribution of the cars sold by different showrooms.



The following pie chart shows the degree distribution of bikes sold by different showrooms.





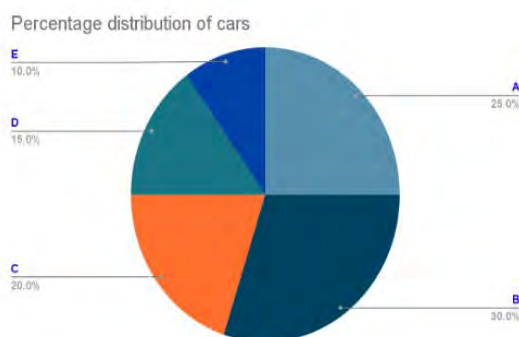
find Difference between the number of electric and petrol bike sold by Showroom A and B

- (A) 546  
(B) 651  
(C) 435  
(D) 980  
(E) Can't be determined

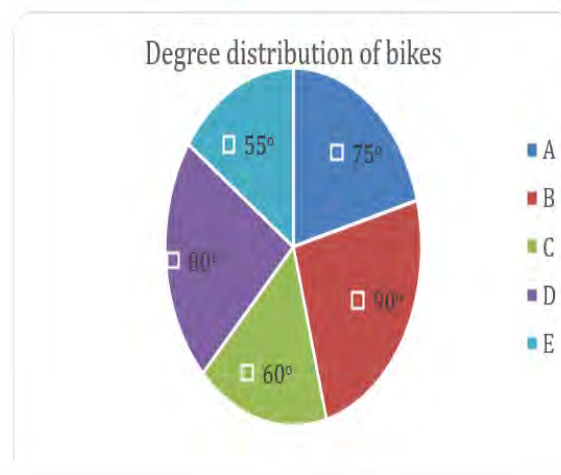
**Q9 Directions :** Study the following information and answer the following questions.

Different numbers of cars and bikes sold by five different showrooms. Total number of bikes and cars sold by all showrooms together is 6600 and the ratio of cars to bikes sold by all showrooms together is 2 : 9.

The following pie chart shows the percentage distribution of the cars sold by different showrooms.



The following pie chart shows the degree distribution of bikes sold by different showrooms.



Showroom	Ratio of the number of petrol bikes to electric bikes	Percentage of the number of petrol cars
A	7 : 8	40%
B	2 : 3	35%
C	5 : 4	55%
D	3 : 5	60%
E	3 : 2	40%

Number of petrol cars sold by showroom D and number of petrol bikes sold by showroom E together is how much percent less/more than the number of electric bikes sold by showroom C (approximately)?

- (A) 40% (B) 45%  
(C) 50% (D) 55%  
(E) None of these

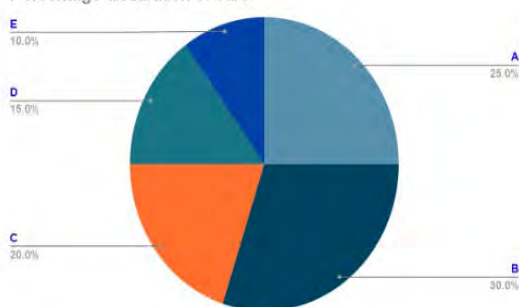
**Q10 Directions :** Study the following information and answer the following questions.

Different numbers of cars and bikes sold by five different showrooms. Total number of bikes and cars sold by all showrooms together is 6600 and the ratio of cars to bikes sold by all showrooms together is 2 : 9.

The following pie chart shows the percentage distribution of the cars sold by different showrooms.

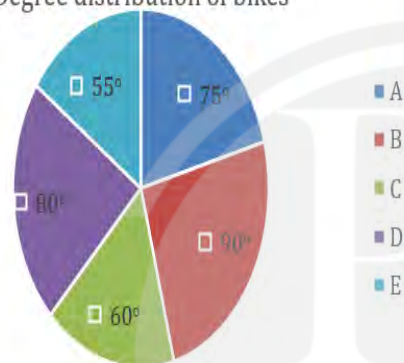


Percentage distribution of cars



The following pie chart shows the degree distribution of bikes sold by different showrooms.

Degree distribution of bikes



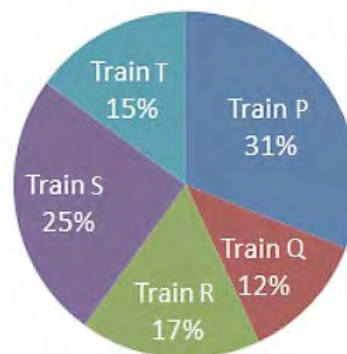
Showroom	Ratio of the number of petrol bikes to electric bikes	Percentage of the number of petrol cars
A	7 : 8	40%
B	2 : 3	35%
C	5 : 4	55%
D	3 : 5	60%
E	3 : 2	40%

Number of electric cars sold by showroom C and E together is how much percent of the number of electric bikes sold by showroom D?

- (A) 20% (B) 24%  
(C) 29% (D) 33%  
(E) None of these

**Q11 Directions:** Read the following information carefully and answer the questions given below:

The pie-chart shows the percentage distribution of the total distance covered by five trains (P, Q, R, S and T) from source to the destination. Let the source be point A and the destination be point B for all trains.



Percentage of the distance covered

Each train starts from A but takes a different route to reach B and follows the same route when it returns to A from B.

Note: The total distance covered by all the trains together to reach B from A is 3100 km.

The table below shows the running speed of all the trains (excluding their stoppage time) while going from source (A) to destination (B) and the ratio of the time taken (including stoppage time) by all the trains while going from A-to-B to the time taken (including stoppage time) while returning from B-to-A. The number of stoppages for each train on its route is given in the table and the average stoppage time taken at each stop is also given.

The respective number of stoppages and stoppage time for each train is same for its journey from A-to-B and B-to-A.

Note: Average speed of train for a journey = Distance of the journey ÷ Total time taken to complete the journey



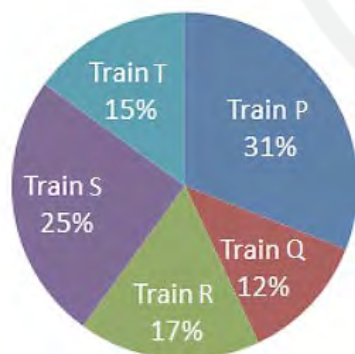
Train	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B: Time taken from B-to-A
P	74.4	25	5	5:6
Q	80	3	7	10:7
R	62	5	6	9:10
S	75	16	10	13:12
T	60	9	5	17:15

For which train, the difference between the running speed from A-to-B and the running speed from B-to-A is the second highest?

- (A) Train T (B) Train R  
(C) Train S (D) Train P  
(E) None of these

**Q12** Directions: Read the following information carefully and answer the questions given below:

The pie-chart shows the percentage distribution of the total distance covered by five trains (P, Q, R, S and T) from source to the destination. Let the source be point A and the destination be point B for all trains.



Percentage of the distance covered

Each train starts from A but takes a different route to reach B and follows the same route when it returns to A from B.

Note: The total distance covered by all the trains together to reach B from A is 3100 km.

The table below shows the running speed of all the trains (excluding their stoppage time) while going from source (A) to destination (B) and the ratio of the time taken (including stoppage time) by all the trains while going from A-to-B to the time taken (including stoppage time) while returning from B-to-A. The number of stoppages for each train on its route is given in the table and the average stoppage time taken at each stop is also given.

The respective number of stoppages and stoppage time for each train is same for its journey from A-to-B and B-to-A.

Note: Average speed of train for a journey = Distance of the journey ÷ Total time taken to complete the journey

Train	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B: Time taken from B-to-A
P	74.4	25	5	5:6
Q	80	3	7	10:7
R	62	5	6	9:10
S	75	16	10	13:12
T	60	9	5	17:15

While returning from B-to-A, the average speed of which train is the third highest?

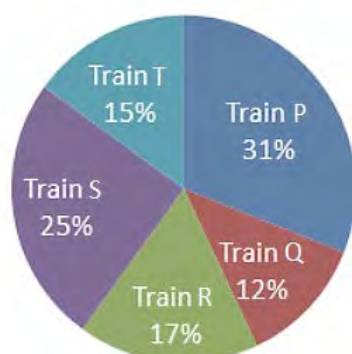
- (A) Train T (B) Train R  
(C) Train S (D) Train P  
(E) None of these

**Q13** Directions: Read the following information carefully and answer the questions given below:

The pie-chart shows the percentage distribution of the total distance covered by five trains (P, Q, R, S and T) from source to the



destination. Let the source be point A and the destination be point B for all trains.



Percentage of the distance covered

Each train starts from A but takes a different route to reach B and follows the same route when it returns to A from B.

Note: The total distance covered by all the trains together to reach B from A is 3100 km.

The table below shows the running speed of all the trains (excluding their stoppage time) while going from source (A) to destination (B) and the ratio of the time taken (including stoppage time) by all the trains while going from A-to-B to the time taken (including stoppage time) while returning from B-to-A. The number of stoppages for each train on its route is given in the table and the average stoppage time taken at each stop is also given.

The respective number of stoppages and stoppage time for each train is same for its journey from A-to-B and B-to-A.

Note: Average speed of train for a journey =  $\text{Distance of the journey} \div \text{Total time taken to complete the journey}$

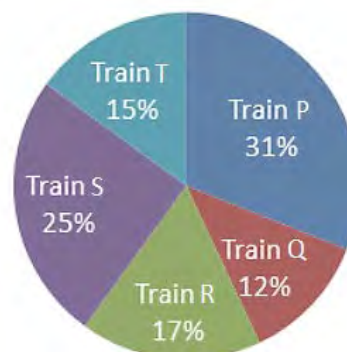
Train	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B: Time taken from B-to-A
P	74.4	25	5	5:6
Q	80	3	7	10:7
R	62	5	6	9:10
S	75	16	10	13:12
T	60	9	5	17:15

Running speed of train U from A-to-B is 20% less than the running speed of train Q from A-to-B. The total time taken by train U, including stoppages, to cover 400 km is equal to the time taken by train R to cover 446.4 km from A-to-B without stoppage. Find the number of stoppages train U stops at, if each stoppage is of 3 minutes.

- (A) 21 (B) 19  
(C) 17 (D) 18  
(E) None of these

**Q14 Directions: Read the following information carefully and answer the questions given below:**

The pie-chart shows the percentage distribution of the total distance covered by five trains (P, Q, R, S and T) from source to the destination. Let the source be point A and the destination be point B for all trains.



Percentage of the distance covered





Each train starts from A but takes a different route to reach B and follows the same route when it returns to A from B.

Note: The total distance covered by all the trains together to reach B from A is 3100 km.

The table below shows the running speed of all the trains (excluding their stoppage time) while going from source (A) to destination (B) and the ratio of the time taken (including stoppage time) by all the trains while going from A-to-B to the time taken (including stoppage time) while returning from B-to-A. The number of stoppages for each train on its route is given in the table and the average stoppage time taken at each stop is also given.

The respective number of stoppages and stoppage time for each train is same for its journey from A-to-B and B-to-A.

Note: Average speed of train for a journey =  $\text{Distance of the journey} \div \text{Total time taken to complete the journey}$

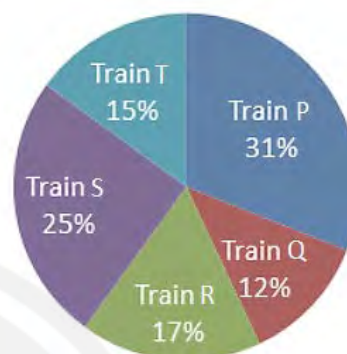
Train	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B: Time taken from B-to-A
P	74.4	25	5	5:6
Q	80	3	7	10:7
R	62	5	6	9:10
S	75	16	10	13:12
T	60	9	5	17:15

While going from A-to-B, if train S and train T passes a pole in 24 seconds and 27 seconds, respectively, then find the ratio of the length of train S to the length of train T.

- (A) 4:3 (B) 6:5  
(C) 9:8 (D) 10:9  
(E) None of these

**Q15 Directions: Read the following information carefully and answer the questions given below:**

The pie-chart shows the percentage distribution of the total distance covered by five trains (P, Q, R, S and T) from source to the destination. Let the source be point A and the destination be point B for all trains.



Percentage of the distance covered

Each train starts from A but takes a different route to reach B and follows the same route when it returns to A from B.

Note: The total distance covered by all the trains together to reach B from A is 3100 km.

The table below shows the running speed of all the trains (excluding their stoppage time) while going from source (A) to destination (B) and the ratio of the time taken (including stoppage time) by all the trains while going from A-to-B to the time taken (including stoppage time) while returning from B-to-A. The number of stoppages for each train on its route is given in the table and the average stoppage time taken at each stop is also given.

The respective number of stoppages and stoppage time for each train is same for its journey from A-to-B and B-to-A.

Note: Average speed of train for a journey =  $\text{Distance of the journey} \div \text{Total time taken to complete the journey}$





Train	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B: Time taken from B-to-A
P	74.4	25	5	5:6
Q	80	3	7	10:7
R	62	5	6	9:10
S	75	16	10	13:12
T	60	9	5	17:15

For which two trains their average speeds for the journey from A-to-B is the closest to each other?

- (A) Train R and Train T  
(B) Train R and Train S  
(C) Train P and Train S  
(D) Train P and Train Q  
(E) Train S and Train T

**Q16 Directions: Read the following information carefully and answer the questions given below:**

Two cities, namely Ahmedabad and Bangalore, were tested for COVID-19 cases in three months March, April, and May.

Both the cities have Urban and Rural areas, and the tests were conducted in both areas.

Outcomes of the tests were either positive or negative.

Month	Number of Tests in both the cities together	Negative outcomes out of total number of tests in both the cities
March	100	30%
April	200	35%
May	360	50%

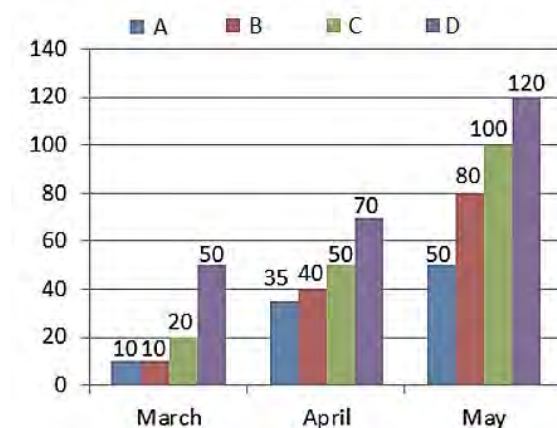
The column chart below shows some other information about the tests.

A = Number of positive cases in Ahmedabad

B = Number of negative cases in Bangalore

C = Number of tests conducted in Urban area of Ahmedabad

D = Number of tests conducted in Urban area of Bangalore



In a given month, it is also known that number of tests found negative in rural area is equal to the number of tests found negative in urban area (True for both the cities)

Find the number of positive cases in April in the two cities together is what percent more than the number of negative cases in the two cities in March?

- (A) 133.33% (B) 333.33%  
(C) 300% (D) 233.33%  
(E) None of these

**Q17 Directions: Read the following information carefully and answer the questions given below:**

Two cities, namely Ahmedabad and Bangalore, were tested for COVID-19 cases in three months March, April, and May.

Both the cities have Urban and Rural areas, and the tests were conducted in both areas.

Outcomes of the tests were either positive or negative.



Month	Number of Tests in both the cities together	Negative outcomes out of total number of tests in both the cities
March	100	30%
April	200	35%
May	360	50%

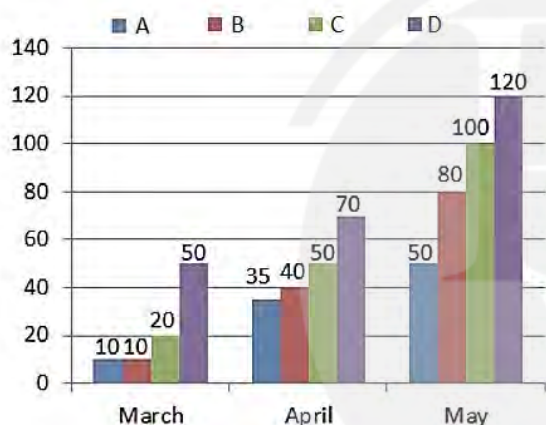
The column chart below shows some other information about the tests.

A = Number of positive cases in Ahmedabad

B = Number of negative cases in Bangalore

C = Number of tests conducted in Urban area of Ahmedabad

D = Number of tests conducted in Urban area of Bangalore



In a given month, it is also known that number of tests found negative in rural area is equal to the number of tests found negative in urban area (True for both the cities)

In which case there was no positive test result:

- (A) Rural area of Ahmedabad in May
- (B) Rural area of Bangalore in all the three months
- (C) Urban area of Bangalore in March
- (D) Urban area of Ahmedabad in all the three months
- (E) None of these

Q18

**Directions:** Read the following information carefully and answer the questions given below:

Two cities, namely Ahmedabad and Bangalore, were tested for COVID-19 cases in three months March, April, and May.

Both the cities have Urban and Rural areas, and the tests were conducted in both areas.

Outcomes of the tests were either positive or negative.

Month	Number of Tests in both the cities together	Negative outcomes out of total number of tests in both the cities
March	100	30%
April	200	35%
May	360	50%

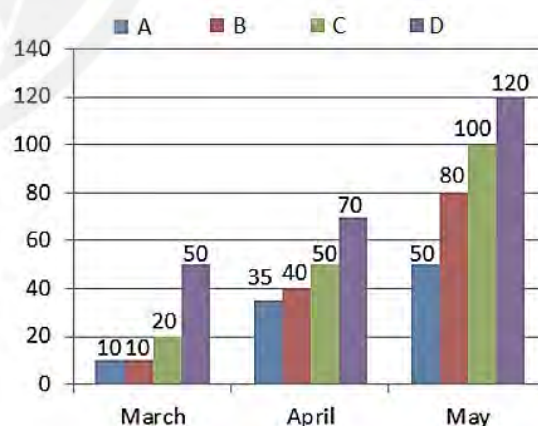
The column chart below shows some other information about the tests.

A = Number of positive cases in Ahmedabad

B = Number of negative cases in Bangalore

C = Number of tests conducted in Urban area of Ahmedabad

D = Number of tests conducted in Urban area of Bangalore



In a given month, it is also known that number of tests found negative in rural area is equal to the number of tests found negative in urban area (True for both the cities)



Find the difference between the total number of positive cases in Urban and Rural areas of Bangalore in the three months together.

- (A) 65 (B) 75  
(C) 110 (D) 70  
(E) None of these

**Q19** Directions: Read the following information carefully and answer the questions given below:

Two cities, namely Ahmedabad and Bangalore, were tested for COVID-19 cases in three months March, April, and May.

Both the cities have Urban and Rural areas, and the tests were conducted in both areas.

Outcomes of the tests were either positive or negative.

Month	Number of Tests in both the cities together	Negative outcomes out of total number of tests in both the cities
March	100	30%
April	200	35%
May	360	50%

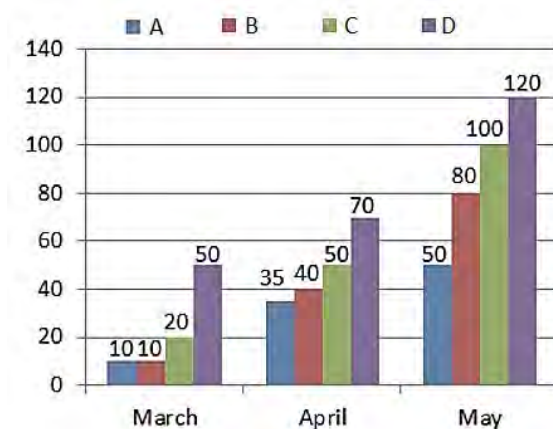
The column chart below shows some other information about the tests.

A = Number of positive cases in Ahmedabad

B = Number of negative cases in Bangalore

C = Number of tests conducted in Urban area of Ahmedabad

D = Number of tests conducted in Urban area of Bangalore



In a given month, it is also known that number of tests found negative in rural area is equal to the number of tests found negative in urban area (True for both the cities)

Find the average number of negative cases in the three months in Ahmedabad.

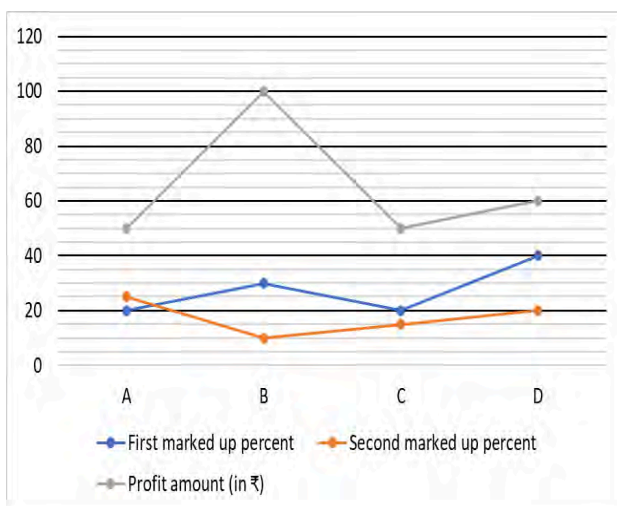
- (A) 120 (B) 75  
(C) 50 (D) 150  
(E) None of these

**Q20** Directions: Study the following data carefully and answer the questions accordingly.

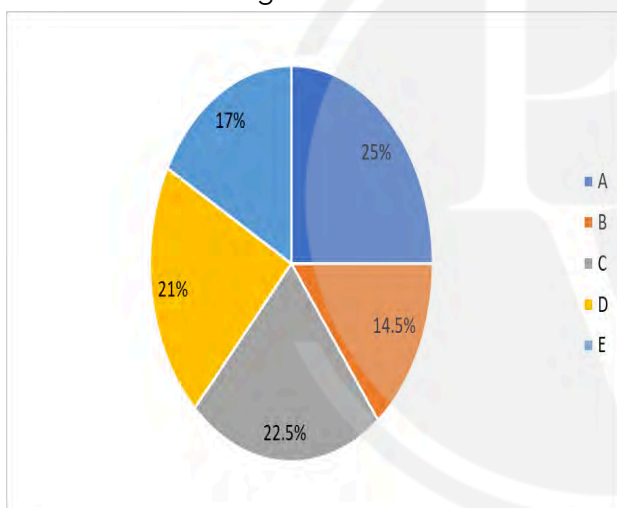
A shopkeeper has four items A, B, C, and D with him. He marked these items successively twice such that first he marked up by certain percent and again marked up by certain percent on the new marked price.

Line graph given below shows the successive marked up percent and profit amount earned after selling these four items.





Pie chart given below shows the percent distribution of the amount of discount given by the shopkeeper on five items A, B, C, D, and E (another item). Total amount of discount given on all the 5 items together is ₹200.



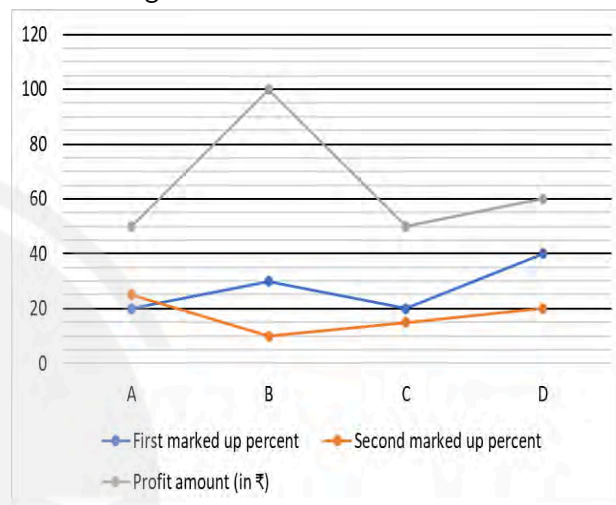
If the shopkeeper marked up item A only once which is equal to the sum of numerical values of first and second marked up percent on that item, then in order to earn the same profit his discount amount should be what percent more/less than the original discount amount?

- (A) 60% less                      (B) 80% less  
 (C) 20% more                    (D) 50% more  
 (E) 50% less

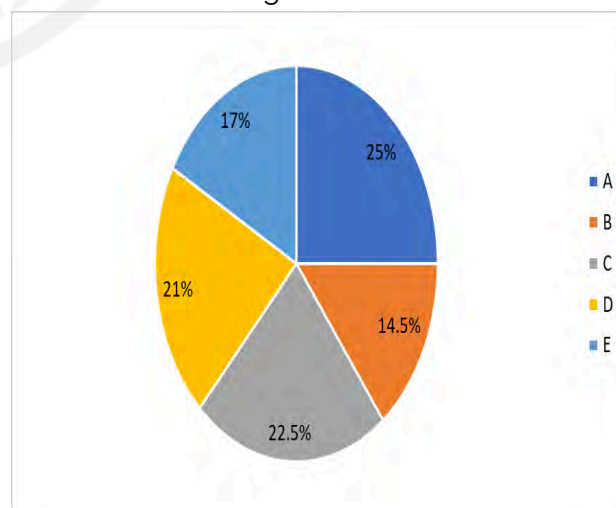
**Directions: Study the following data carefully and answer the questions accordingly.**

A shopkeeper has four items A, B, C, and D with him. He marked these items successively twice such that first he marked up by certain percent and again marked up by certain percent on the new marked price.

Line graph given below shows the successive marked up percent and profit amount earned after selling these four items.



Pie chart given below shows the percent distribution of the amount of discount given by the shopkeeper on five items A, B, C, D, and E (another item). Total amount of discount given on all the 5 items together is ₹200.



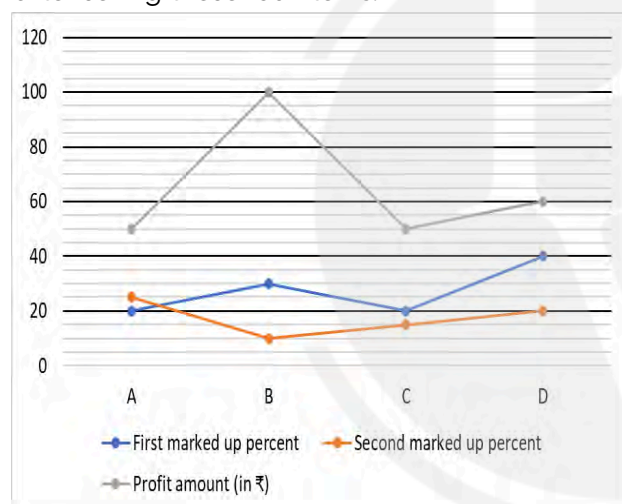
If the shopkeeper gave an additional discount of ₹24 on item D, then find the new profit percent earned on that item.

- (A) 12% (B) 30%  
(C) 24% (D) 18%  
(E) 16%

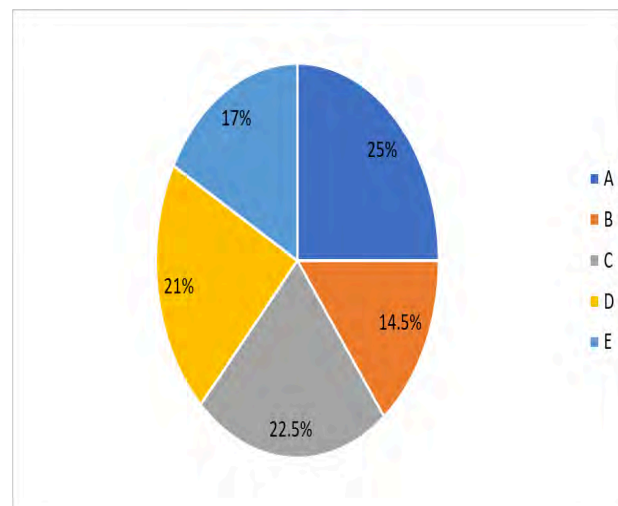
**Q22** Directions: Study the following data carefully and answer the questions accordingly.

A shopkeeper has four items A, B, C, and D with him. He marked these items successively twice such that first he marked up by certain percent and again marked up by certain percent on the new marked price.

Line graph given below shows the successive marked up percent and profit amount earned after selling these four items.



Pie chart given below shows the percent distribution of the amount of discount given by the shopkeeper on five items A, B, C, D, and E (another item). Total amount of discount given on all the 5 items together is ₹200.



If the cost price of item C is ₹50 more, then to earn the same profit percent on that item selling price would be how much more than its actual selling price?

- (A) ₹50 (B) ₹60  
(C) ₹70 (D) ₹80  
(E) ₹90

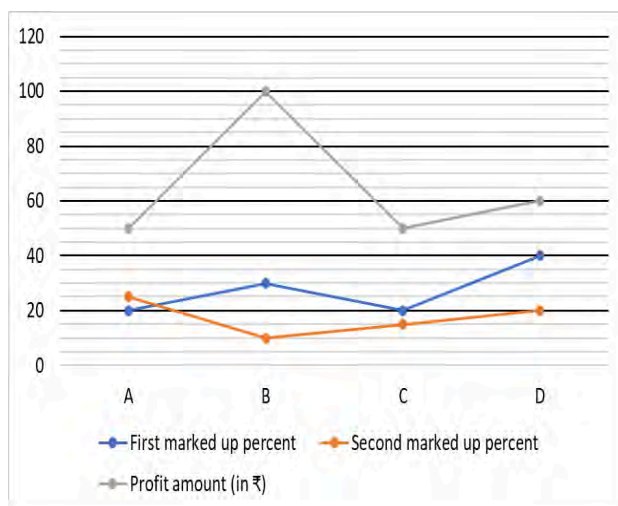
**Q23** Directions: Study the following data carefully and answer the questions accordingly.

A shopkeeper has four items A, B, C, and D with him. He marked these items successively twice such that first he marked up by certain percent and again marked up by certain percent on the new marked price.

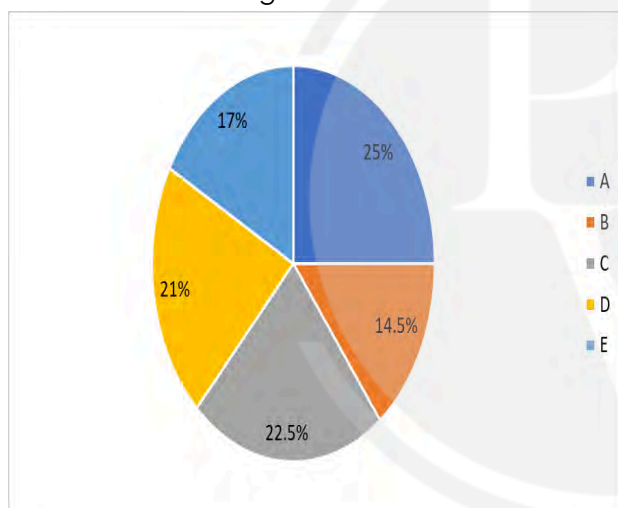
Line graph given below shows the successive marked up percent and profit amount earned after selling these four items.







Pie chart given below shows the percent distribution of the amount of discount given by the shopkeeper on five items A, B, C, D, and E (another item). Total amount of discount given on all the 5 items together is ₹200.



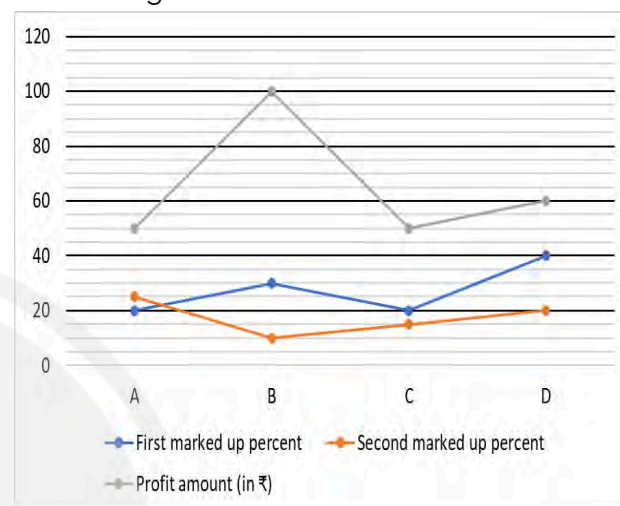
Ratio of selling price of items A and E is 1: 2 and total profit percent earned after selling both the items together is 50%. Find the cost price of item E.

- (A) ₹450                      (B) ₹400  
(C) ₹250                      (D) ₹350  
(E) ₹300

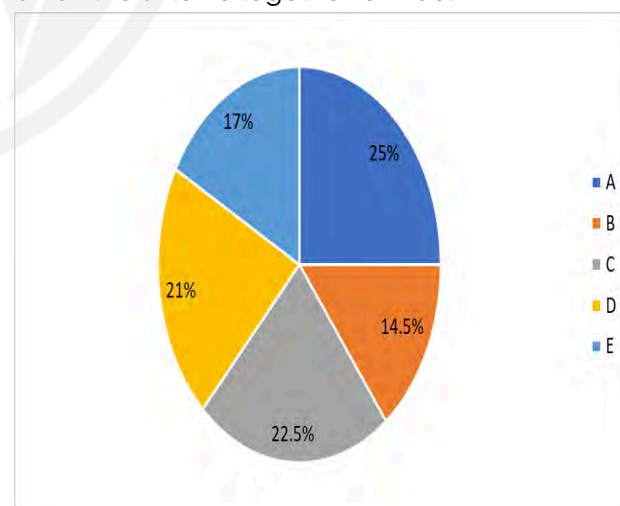
**Q24** Directions: Study the following data carefully and answer the questions accordingly.

A shopkeeper has four items A, B, C, and D with him. He marked these items successively twice such that first he marked up by certain percent and again marked up by certain percent on the new marked price.

Line graph given below shows the successive marked up percent and profit amount earned after selling these four items.



Pie chart given below shows the percent distribution of the amount of discount given by the shopkeeper on five items A, B, C, D, and E (another item). Total amount of discount given on all the 5 items together is ₹200.



What is the approximate (up to 1 decimal point) discount percent given by the shopkeeper while selling items B and C together?





- (A) 9.6% (B) 11.2%  
 (C) 10.8% (D) 12.4%  
 (E) 8.4%

**Q25** Directions: Study the following data carefully and answer the questions accordingly.

Five persons go from city X to city Y either directly or via city P. Line graph given below shows the time taken (in min) by them to cover the distance between X and Y directly.

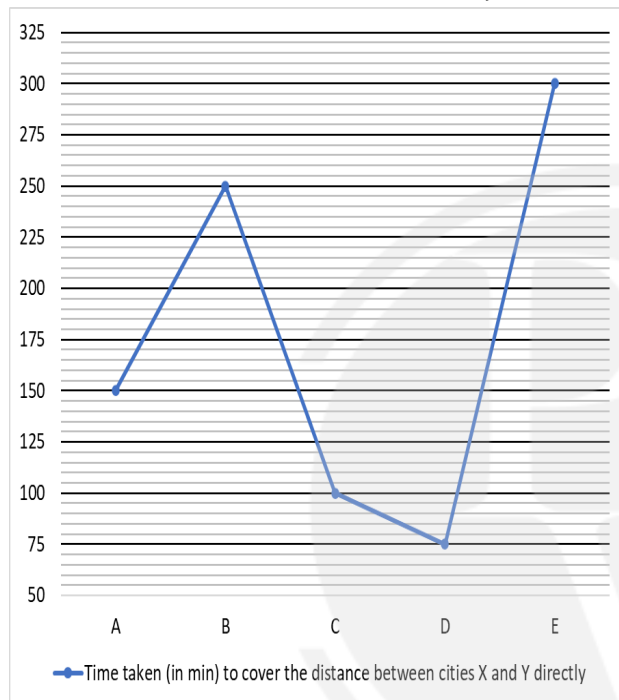
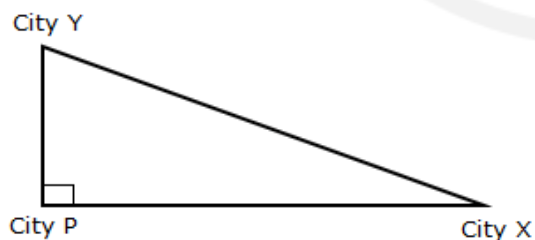


Diagram below shows the positions of three cities X, Y, and P.



Note:

- Time taken by person A to go from city X to city Y via city P is 36 min more than the time taken by him to go to city Y from city X directly.
- Distance between cities X and Y via city P is 30 km more than the distance between cities X

and Y directly.

By what percent person A should increase his speed if he wishes to cover the distance between cities X and Y via P as he would take when he goes directly?

- (A) 24% (B) 28%  
 (C) 32% (D) 30%  
 (E) None of these

**Q26** Directions: Study the following data carefully and answer the questions accordingly.

Five persons go from city X to city Y either directly or via city P. Line graph given below shows the time taken (in min) by them to cover the distance between X and Y directly.

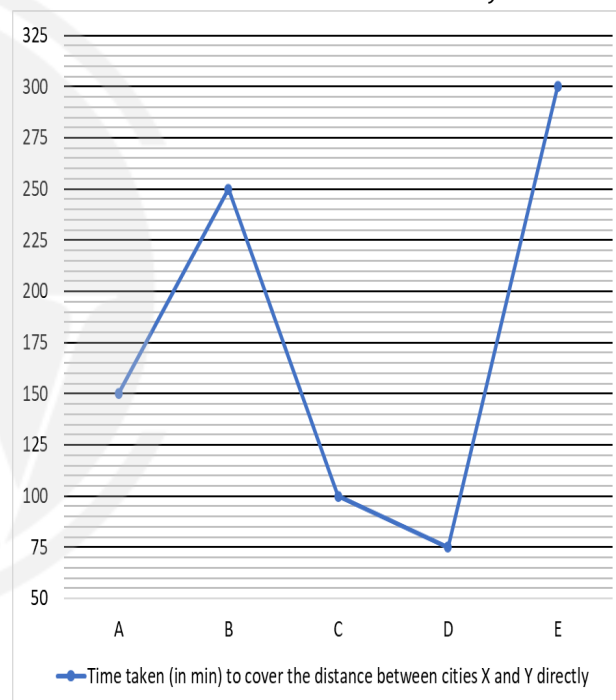
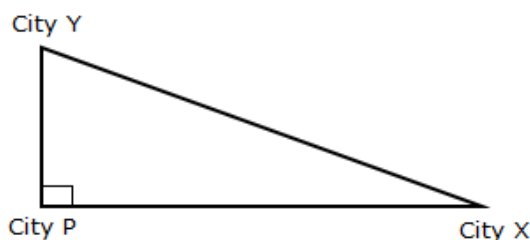


Diagram below shows the positions of three cities X, Y, and P.



Note:



1. Time taken by person A to go from city X to city Y via city P is 36 min more than the time taken by him to go to city Y from city X directly.
2. Distance between cities X and Y via city P is 30 km more than the distance between cities X and Y directly.

Find the ratio of distance between cities X and Y directly to the distance between cities X and Y via city P.

- (A) 12: 13                      (B) 13: 21  
(C) 7: 12                        (D) 5: 11  
(E) 25 : 31

**Q27 Directions: Study the following data carefully and answer the questions accordingly.**

Five persons go from city X to city Y either directly or via city P. Line graph given below shows the time taken (in min) by them to cover the distance between X and Y directly.

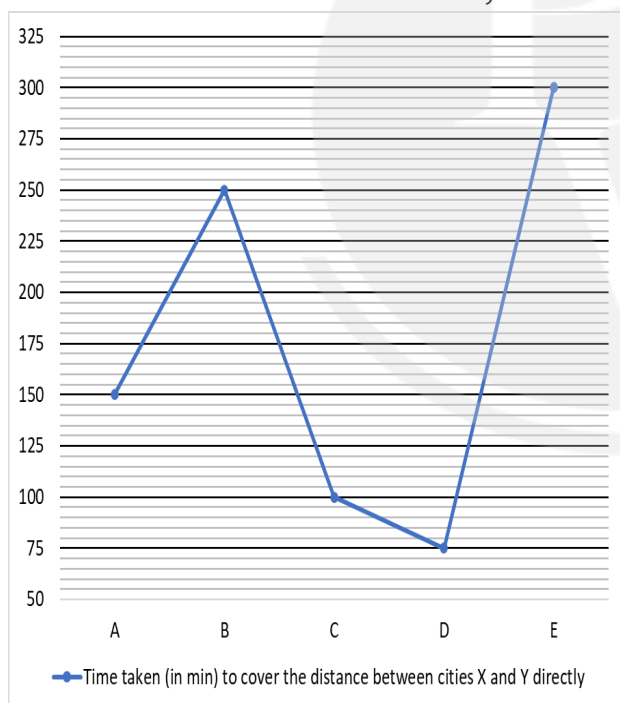
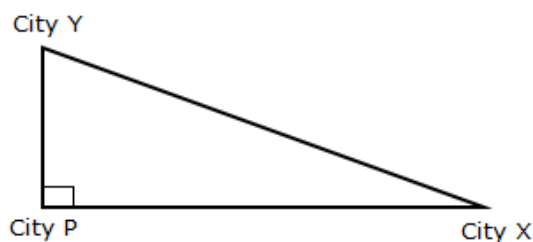


Diagram below shows the positions of three cities X, Y, and P.



Note:

1. Time taken by person A to go from city X to city Y via city P is 36 min more than the time taken by him to go to city Y from city X directly.
2. Distance between cities X and Y via city P is 30 km more than the distance between cities X and Y directly.

If person B starts from city X towards city P and after traveling for 'D' km he starts traveling towards city Y and reaches there in 4 hours 14 min. Find the value of 'D'.

- (A) 24                              (B) 30  
(C) 36                              (D) 48  
(E) 40

**Q28 Directions: Study the following data carefully and answer the questions accordingly.**

Five persons go from city X to city Y either directly or via city P. Line graph given below shows the time taken (in min) by them to cover the distance between X and Y directly.



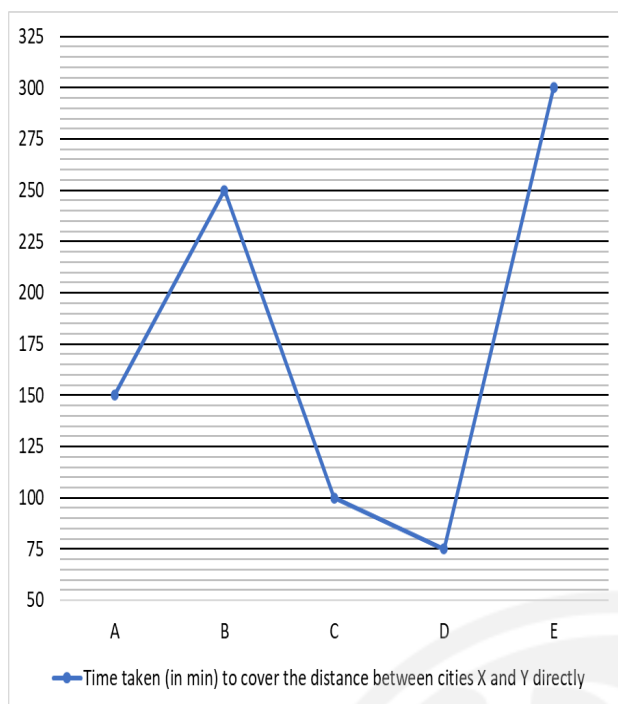
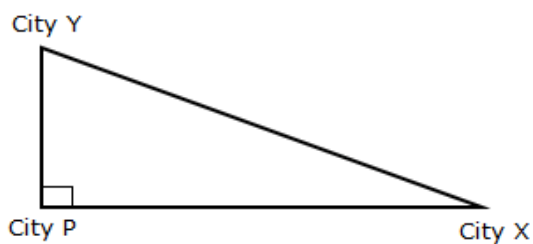


Diagram below shows the positions of three cities X, Y, and P.



Note:

1. Time taken by person A to go from city X to city Y via city P is 36 min more than the time taken by him to go to city Y from city X directly.
2. Distance between cities X and Y via city P is 30 km more than the distance between cities X and Y directly.

Find the difference between the time taken by person A to travel between cities X and Y via city P and time taken by person C to travel between cities X and Y via city P.

- |                  |                  |
|------------------|------------------|
| (A) 1 hour 6 min | (B) 56 min       |
| (C) 48 min       | (D) 1 hour 2 min |
| (E) 42 min       |                  |



# Answer Key

## Level-1

Q1 (E)  
Q2 (B)  
Q3 (E)  
Q4 (B)  
Q5 (C)  
Q6 (B)  
Q7 (A)  
Q8 (B)  
Q9 (A)  
Q10 (A)  
Q11 (A)  
Q12 (A)  
Q13 (B)  
Q14 (B)  
Q15 (A)  
Q16 (B)  
Q17 (A)  
Q18 (C)

Q19 (C)  
Q20 (C)  
Q21 (B)  
Q22 (D)  
Q23 (B)  
Q24 (C)  
Q25 (D)  
Q26 (E)  
Q27 (B)  
Q28 (E)  
Q29 (C)  
Q30 (D)  
Q31 (E)  
Q32 (C)  
Q33 (C)  
Q34 (D)  
Q35 (B)



## Level-2

Q1 (E)  
Q2 (A)  
Q3 (B)  
Q4 (D)  
Q5 (A)  
Q6 (D)  
Q7 (B)  
Q8 (A)  
Q9 (E)  
Q10 (C)  
Q11 (C)  
Q12 (D)  
Q13 (B)  
Q14 (E)  
Q15 (C)  
Q16 (C)  
Q17 (A)  
Q18 (C)  
Q19 (A)

Q20 (B)  
Q21 (A)  
Q22 (B)  
Q23 (B)  
Q24 (D)  
Q25 (D)  
Q26 (B)  
Q27 (A)  
Q28 (A)  
Q29 (D)  
Q30 (A)  
Q31 (A)  
Q32 (E)  
Q33 (E)  
Q34 (C)  
Q35 (B)  
Q36 (E)  
Q37 (D)



## Level-3

Q1 (B)  
Q2 (E)  
Q3 (D)  
Q4 (C)  
Q5 (A)  
Q6 (C)  
Q7 (E)  
Q8 (B)  
Q9 (C)  
Q10 (B)  
Q11 (D)  
Q12 (A)  
Q13 (B)  
Q14 (D)

Q15 (B)  
Q16 (B)  
Q17 (A)  
Q18 (A)  
Q19 (C)  
Q20 (B)  
Q21 (C)  
Q22 (B)  
Q23 (E)  
Q24 (A)  
Q25 (A)  
Q26 (E)  
Q27 (C)  
Q28 (D)





# Hints & Solutions

## Level-1

### Q1 Text Solution:

Selling Price of object  $A$  = Marked price – Discount

$$= 750 - 20\% \text{ of } 750$$

$$= 750 - 150$$

$$= 600$$

Selling price of object  $B$  = Marked price – Discount

$$= 1000 - 15\% \text{ of } 1000$$

$$= 1000 - 150$$

$$= 850$$

Selling price of object  $C$  = Marked price – Discount

$$= 1200 - 10\% \text{ of } 1200$$

$$= 1080$$

Selling price of object  $D$  =  $720 - 10\%$  of  $720$

$$= 720 - 72$$

$$= 648$$

Selling price of object  $E$  =  $1080 - 20\%$  of  $1080$

$$= 864$$

$$\text{Profit on } A = 600 - 500 = 100$$

$$\text{Profit on } B = 850 - 800 = 50$$

$$\text{Total profit} = 100 + 50 = 150$$

### Q2 Text Solution:

Selling Price of object  $A$  = Marked price – Discount

$$= 750 - 20\% \text{ of } 750$$

$$= 750 - 150$$

$$= 600$$

Selling price of object  $B$  = Marked price – Discount

$$= 1000 - 15\% \text{ of } 1000$$

$$= 1000 - 150$$

$$= 850$$

Selling price of object  $C$  = Marked price – Discount

$$= 1200 - 10\% \text{ of } 1200$$

$$= 1080$$

Selling price of object  $D$  =  $720 - 10\%$  of  $720$

$$= 720 - 72$$

$$= 648$$

Selling price of object  $E$  =  $1080 - 20\%$  of  $1080$

$$= 864$$

$$\text{Average} = \frac{600+850+1080+648+864}{5}$$

$$= \frac{4042}{5}$$

$$= 808.4$$

### Q3 Text Solution:

Selling Price of object  $A$  = Marked price – Discount

$$= 750 - 20\% \text{ of } 750$$

$$= 750 - 150$$

$$= 600$$

Selling price of object  $B$  = Marked price – Discount

$$= 1000 - 15\% \text{ of } 1000$$

$$= 1000 - 150$$

$$= 850$$

Selling price of object  $C$  = Marked price – Discount

$$= 1200 - 10\% \text{ of } 1200$$

$$= 1080$$

Selling price of object  $D$  =  $720 - 10\%$  of  $720$

$$= 720 - 72$$

$$= 648$$

Selling price of object  $E$  =  $1080 - 20\%$  of  $1080$

$$= 864$$

Total cost price of objects  $A, B$  &  $C$

$$= 500 + 800 + 1000 = 2300$$


Total selling price of objects A,B & C  
 $= 600 + 850 + 1080 = 2530$

$$\text{Required profit \%} = \frac{2530-2300}{2300} \times 100 \\ = 10\%$$

**Q4 Text Solution:**

Marked price of the object  $F = 120\%$  of 1200 = 1440

Cost price of the object  $F =$  marked price of the  $B = 1000$

Discount percentage on object  $F =$  Discount percentage on  $C = 10\%$

Selling price = Marked price – Discount

$$= 1440 - 10\% \text{ of } 1440$$

$$= 1440 - 144$$

$$= 1296$$

$$\text{Profit percent} = \frac{1296-1000}{1000} \times 100 = 29.6\%$$

**Q5 Text Solution:**

Selling Price of object  $A =$  Marked price – Discount

$$= 750 - 20\% \text{ of } 750$$

$$= 750 - 150$$

$$= 600$$

Selling price of object  $B =$  Marked price – Discount

$$= 1000 - 15\% \text{ of } 1000$$

$$= 1000 - 150$$

$$= 850$$

Selling price of object  $C =$  Marked price – Discount

$$= 1200 - 10\% \text{ of } 1200$$

$$= 1080$$

Selling price of object  $D = 720 - 10\%$  of 720

$$= 720 - 72$$

$$= 648$$

Selling price of object  $E = 1080 - 20\%$  of 1080

$$= 864$$

$$\text{Profit \%} = \frac{1080-1000}{1000} \times 100$$

$$= \frac{80}{1000} \times 100 \\ = 8\%$$

**Q6 Text Solution:**

Number of death in America

$$= 10\% \text{ of } 400000 = 40000$$

Number of recovery in America

$$= 15\% \text{ of } 400000 = 60000$$

Number of death in Japan

$$= 12\% \text{ of } 600000 = 72000$$

Number of recovery in japan

$$= 15\% \text{ of } 600000 = 90000$$

Number of death in china

$$= 15\% \text{ of } 800000 = 120000$$

Number of recovery in china

$$= 8\% \text{ of } 800000 = 64000$$

Number of death in India

$$= 10\% \text{ of } 400000 = 40000$$

Number of recovery in india

$$= 20\% \text{ of } 400000 = 80000$$

Number of recovery and death patient in india

$$= 40000 + 80000 = 120000$$

Number of death patient in china = 64000

$$\text{Required ratio} = 120000 : 64000$$

$$= 15 : 8$$

**Q7 Text Solution:**

Number of death in America

$$= 10\% \text{ of } 400000 = 40000$$

Number of recovery in America

$$= 15\% \text{ of } 400000 = 60000$$

Number of death in Japan

$$= 12\% \text{ of } 600000 = 72000$$

Number of recovery in japan

$$= 15\% \text{ of } 600000 = 90000$$

Number of death in china

$$= 15\% \text{ of } 800000 = 120000$$

Number of recovery in china

$$= 8\% \text{ of } 800000 = 64000$$



Number of death in India  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in india  
 $= 20\% \text{ of } 400000 = 80000$   
 Required ratio  $= 64000 : 40000$   
 $= 8 : 5$

**Q8 Text Solution:**

Number of death in America  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in America  
 $= 15\% \text{ of } 400000 = 60000$   
 Number of death in Japan  
 $= 12\% \text{ of } 600000 = 72000$   
 Number of recovery in japan  
 $= 15\% \text{ of } 600000 = 90000$   
 Number of death in china  
 $= 15\% \text{ of } 800000 = 120000$   
 Number of recovery in china  
 $= 8\% \text{ of } 800000 = 64000$   
 Number of death in India  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in india  
 $= 20\% \text{ of } 400000 = 80000$   
 Total recover patient  
 $= 60000 + 90000 + 64000 + 80000$   
 $= 294000$

**Q9 Text Solution:**

Number of death in America  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in America  
 $= 15\% \text{ of } 400000 = 60000$   
 Number of death in Japan  
 $= 12\% \text{ of } 600000 = 72000$   
 Number of recovery in japan  
 $= 15\% \text{ of } 600000 = 90000$   
 Number of death in china  
 $= 15\% \text{ of } 800000 = 120000$

Number of recovery in china  
 $= 8\% \text{ of } 800000 = 64000$   
 Number of death in India  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in india  
 $= 20\% \text{ of } 400000 = 80000$   
 Required percentage  
 $= \frac{80000 - 60000}{80000} \times 100 = 25\% \text{ less}$

**Q10 Text Solution:**

Number of death in America  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in America  
 $= 15\% \text{ of } 400000 = 60000$   
 Number of death in Japan  
 $= 12\% \text{ of } 600000 = 72000$   
 Number of recovery in japan  
 $= 15\% \text{ of } 600000 = 90000$   
 Number of death in china  
 $= 15\% \text{ of } 800000 = 120000$   
 Number of recovery in china  
 $= 8\% \text{ of } 800000 = 64000$   
 Number of death in India  
 $= 10\% \text{ of } 400000 = 40000$   
 Number of recovery in india  
 $= 20\% \text{ of } 400000 = 80000$   
 Number of covid patient in Japan  $= 600000$   
 Number of covid patient in China  $= 800000$   
 Required percentage  $= \frac{800000 - 600000}{800000} \times 100$   
 $= 25\% \text{ less}$

**Q11 Text Solution:**

Common solution.  
 Selling number of Lenovo mobiles  $= 60\% \text{ of } 2000000 = 1200000$   
 Selling number of Motorola mobiles  $= 50\% \text{ of } 2500000 = 1250000$   
 Selling number of samsung mobiles  $= 80\% \text{ of } 4000000 = 3200000$



Selling number of Oneplus mobiles = 50% of 2800000 = 1400000

Selling number of Sony mobiles = 50% of 2200000 = 1100000

Selling number of Oneplus mobiles = 50% of 2800000 = 1400000

Selling number of Motorola mobiles = 50% of 2500000 = 1250000

Required percentage  

$$= \frac{1400000 - 1250000}{1250000} \times 100 = 12\% \text{ more}$$

#### Q12 Text Solution:

Common solution.

Selling number of Lenovo mobiles = 60% of 2000000 = 1200000

Selling number of Motorola mobiles = 50% of 2500000 = 1250000

Selling number of samsung mobiles = 80% of 4000000 = 3200000

Selling number of Oneplus mobiles = 50% of 2800000 = 1400000

Selling number of Sony mobiles = 50% of 2200000 = 1100000

Selling number of Lenovo mobiles = 60% of 2000000 = 1200000

Selling number of Motorola mobiles = 50% of 2500000 = 1250000

Requires ratio  

$$= 1200000 : 1250000 = 24 : 25$$

#### Q13 Text Solution:

Common solution.

Selling number of Lenovo mobiles = 60% of 2000000 = 1200000

Selling number of Motorola mobiles = 50% of 2500000 = 1250000

Selling number of samsung mobiles = 80% of 4000000 = 3200000

Selling number of Oneplus mobiles = 50% of 2800000 = 1400000

Selling number of Sony mobiles = 50% of 2200000 = 1100000

Selling number of Lenovo mobiles = 60% of 2000000 = 1200000

Production of Samsung mobiles = 4000000

Required ratio =  

$$1200000 : 4000000 = 3 : 10$$

#### Q14 Text Solution:

Selling number of Lenovo mobiles = 60% of 2000000 = 1200000

Selling number of Motorola mobiles = 50% of 2500000 = 1250000

Selling number of samsung mobiles = 80% of 4000000 = 3200000

Selling number of Oneplus mobiles = 50% of 2800000 = 1400000

Selling number of Sony mobiles = 50% of 2200000 = 1100000

Average  

$$= \frac{1200000 + 1250000 + 3200000 + 1400000 + 1100000}{5}$$

$$= \frac{8150000}{5} = 1630000$$

#### Q15 Text Solution:

Common solution.

Selling number of Lenovo mobiles = 60% of 2000000 = 1200000

Selling number of Motorola mobiles = 50% of 2500000 = 1250000

Selling number of samsung mobiles = 80% of 4000000 = 3200000

Selling number of Oneplus mobiles = 50% of 2800000 = 1400000

Selling number of Sony mobiles = 50% of 2200000 = 1100000

Selling number of samsung mobiles = 80 of 4000000 = 3200000

Selling number of Oneplus mobiles = 50 of 2800000 = 1400000



$$\begin{aligned} &\text{Required} \\ &= \frac{320000}{1400000} \times 100 = 228.5\% \end{aligned} \quad \text{percentage}$$

**Q16 Text Solution:**

In City A, the number of child labors 24% of 4800=1152= 0.4% of the total population

$$\text{The total population} = \frac{1152 \times 100}{0.4} = 288000$$

In City B, the number of child labors = 18% of 4800= 18 x 48= 0.2% of the total population

$$\text{The total population} = \frac{18 \times 48 \times 100}{0.2} = 432000$$

In City C, the number of child labors= 20% of 4800= 20 x 48= 0.5% of the total population

$$\text{The total population} = \frac{20 \times 48 \times 100}{0.5} = 192000$$

In City D, the number of child labors = 16% of 4800= 16 x 48= 0.3% of the total population

$$\text{The total population} = \frac{16 \times 48 \times 100}{0.3} = 256000$$

In City E, the number of child labors = 22% of 4800 = 22 x 48 = 0.24% of the total population

$$\text{The total population} = \frac{22 \times 48 \times 100}{0.24} = 440000$$

The Required difference 288000-256000 =32000

**Q17 Text Solution:**

The total population of city B and D together = 432000+256000 = 688000

the total number of people in the cities B and D together who are not child labour = 688000-(18 x 48 + 16 x 48) = 688000-(864 + 768) = 688000 - 1632= 686368

**Q18 Text Solution:**

In City A, the number of child labors 24% of 4800=1152= 0.4% of the total population

$$\text{The total population} = \frac{1152 \times 100}{0.4} = 288000$$

In City B, the number of child labors = 18% of 4800= 18 x 48= 0.2% of the total population

$$\text{The total population} = \frac{18 \times 48 \times 100}{0.2} = 432000$$

In City C, the number of child labors= 20% of 4800= 20 x 48= 0.5% of the total population

$$\text{The total population} = \frac{20 \times 48 \times 100}{0.5} = 192000$$

In City D, the number of child labors = 16% of 4800= 16 x 48= 0.3% of the total population

$$\text{The total population} = \frac{16 \times 48 \times 100}{0.3} = 256000$$

In City E, the number of child labors = 22% of 4800 = 22 x 48 = 0.24% of the total population

$$\text{The total population} = \frac{22 \times 48 \times 100}{0.24} = 440000$$

The required ratio = 192000: 440000 = 24:55

**Q19 Text Solution:**

In City A, the number of child labors 24% of 4800=1152= 0.4% of the total population

$$\text{The total population} = \frac{1152 \times 100}{0.4} = 288000$$

In City B, the number of child labors = 18% of 4800= 18 x 48= 0.2% of the total population

$$\text{The total population} = \frac{18 \times 48 \times 100}{0.2} = 432000$$

In City C, the number of child labors= 20% of 4800= 20 x 48= 0.5% of the total population

$$\text{The total population} = \frac{20 \times 48 \times 100}{0.5} = 192000$$

In City D, the number of child labors = 16% of 4800= 16 x 48= 0.3% of the total population

$$\text{The total population} = \frac{16 \times 48 \times 100}{0.3} = 256000$$

In City E, the number of child labors = 22% of 4800 = 22 x 48 = 0.24% of the total population

$$\text{The total population} = \frac{22 \times 48 \times 100}{0.24} = 440000$$

The sum of the total population of all the five cities together = 288000+ 432000+ 192000 + 256000 + 440000 = 1608000

**Q20 Text Solution:**

In City A, the number of child labors 24% of 4800=1152= 0.4% of the total population

$$\text{The total population} = \frac{1152 \times 100}{0.4} = 288000$$

In City B, the number of child labors = 18% of 4800= 18 x 48= 0.2% of the total population

$$\text{The total population} = \frac{18 \times 48 \times 100}{0.2} = 432000$$

In City C, the number of child labors= 20% of 4800= 20 x 48= 0.5% of the total population

$$\text{The total population} = \frac{20 \times 48 \times 100}{0.5} = 192000$$

In City D, the number of child labors = 16% of 4800= 16 x 48= 0.3% of the total population



The total population =  $\frac{16 \times 48 \times 100}{0.3} = 256000$

In City E, the number of child labors = 22% of 4800 =  $22 \times 48 = 0.24\%$  of the total population

The total population =  $\frac{22 \times 48 \times 100}{0.24} = 440000$

The number of child labours in the city A = 1152

The total population of the city C = 192000

The reqd. % =  $\frac{1152 \times 100}{192000} = 0.6\%$

### Q21 Text Solution:

Total number of cakes in store A =  $102 \times \frac{10080}{360} = 2856$

Number of the butter cakes in store A =  $\frac{2856 \times 15}{(15 + 9)}$   
 $= 2856 \times \frac{15}{24} = 1785$

Number of the milk cakes in store A = 2856 – 1785 = 1071

The number of butter cakes sold in store A =  $\frac{1785 \times 11}{(11 + 4)} = 1785 \times \frac{11}{15} = 1309$

The number of butter cakes unsold in store A = 1785 – 1309 = 476

The number of milk cakes sold in store A =  $\frac{1071 \times 7}{(7 + 2)} = 1071 \times \frac{7}{9} = 833$

The number of milk cakes unsold in store A = 1071 – 833 = 238

Store	Number of butter cakes	Number of milk cakes	Number of butter cakes sold	Number of butter cakes unsold	Number of milk cakes sold	Number of milk cakes unsold
A	1785	1071	1309	476	833	238
B	735	1029	441	294	686	343
C	1715	1029	1029	686	343	686
D	483	805	322	161	483	322
E	714	1014	595	119	845	169

Total number of butter cakes unsold = 476 + 294 + 686 + 161 + 119 = 1736

Total number of milk cakes unsold = 238 + 343 + 686 + 322 + 169 = 1758

Required percentage =  $100 \times \frac{1736}{1758} = 98.74\%$

### Q22 Text Solution:

Total number of cakes in store A =  $102 \times \frac{10080}{360} = 2856$

Number of the butter cakes in store A =  $\frac{2856 \times 15}{(15 + 9)} = 2856 \times \frac{15}{24} = 1785$

Number of the milk cakes in store A = 2856 – 1785 = 1071

The number of butter cakes sold in store A =  $\frac{1785 \times 11}{(11 + 4)} = 1785 \times \frac{11}{15} = 1309$

The number of butter cakes unsold in store A = 1785 – 1309 = 476

The number of milk cakes sold in store A =  $\frac{1071 \times 7}{(7 + 2)} = 1071 \times \frac{7}{9} = 833$

The number of milk cakes unsold in store A = 1071 – 833 = 238

Store	Number of butter cakes	Number of milk cakes	Number of butter cakes sold	Number of butter cakes unsold	Number of milk cakes sold	Number of milk cakes unsold
A	1785	1071	1309	476	833	238
B	735	1029	441	294	686	343
C	1715	1029	1029	686	343	686
D	483	805	322	161	483	322
E	714	1014	595	119	845	169

Number of the milk cakes sold in store B and C = 343 + 686 = 1029

Quantity of milk cakes sold = 1029 × 3 = 3087 pounds

Number of the butter cakes sold in store B and C = 441 + 1029 = 1470

Quantity of butter cakes sold = 1470 × 5 = 7350 pounds

Total Quantity sold = 3087 + 7350 = 10437 pounds

### Q23 Text Solution:

Total number of cakes in store A =  $102 \times \frac{10080}{360} = 2856$

Number of the butter cakes in store A =  $\frac{2856 \times 15}{(15 + 9)} = 2856 \times \frac{15}{24} = 1785$

Number of the milk cakes in store A = 2856 – 1785 = 1071

The number of butter cakes sold in store A =  $\frac{1785 \times 11}{(11 + 4)} = 1785 \times \frac{11}{15} = 1309$

The number of butter cakes unsold in store A = 1785 – 1309 = 476





The number of milk cakes sold in store A =  $\frac{1071 \times 7}{(7+2)} = 1071 \times \frac{7}{9} = 833$

The number of milk cakes unsold in store A =  $1071 - 833 = 238$

Store	Number of butter cakes	Number of milk cakes	Number of butter cakes sold	Number of butter cakes unsold	Number of milk cakes sold	Number of milk cakes unsold
A	1785	1071	1309	476	833	238
B	735	1029	441	294	686	343
C	1715	1029	1029	686	343	686
D	483	805	322	161	483	322
E	714	1014	595	119	845	169

Total number of the butter cakes unsold in store A, C and E together =  $476 + 686 + 119 = 1281$

Total number of milk cakes sold in store A, C and E =  $833 + 343 + 845 = 2021$

Required percentage =  $100 \times \frac{1281}{2021} = 63.38\%$

#### Q24 Text Solution:

Total number of cakes in store A =  $102 \times \frac{10080}{360} = 2856$

Number of the butter cakes in store A =  $\frac{2856 \times 15}{(15+9)} = 2856 \times \frac{15}{24} = 1785$

Number of the milk cakes in store A =  $2856 - 1785 = 1071$

The number of butter cakes sold in store A =  $\frac{1785 \times 11}{(11+4)} = 1785 \times \frac{11}{15} = 1309$

The number of butter cakes unsold in store A =  $1785 - 1309 = 476$

The number of milk cakes sold in store A =  $\frac{1071 \times 7}{(7+2)} = 1071 \times \frac{7}{9} = 833$

The number of milk cakes unsold in store A =  $1071 - 833 = 238$

Store	Number of butter cakes	Number of milk cakes	Number of butter cakes sold	Number of butter cakes unsold	Number of milk cakes sold	Number of milk cakes unsold
A	1785	1071	1309	476	833	238
B	735	1029	441	294	686	343
C	1715	1029	1029	686	343	686
D	483	805	322	161	483	322
E	714	1014	595	119	845	169

Total number of butter cakes sold in store A, B and E together =  $1309 + 441 + 595 = 2345$

Total number of milk cakes sold in store B, D and E together =  $686 + 483 + 845 = 2014$

Sum of the number of milk cakes sold in store A, B and E together and number of sold butter cakes in store B, D and E together =  $2345 + 2014 = 4359$

Required percentage =  $100 \times \frac{4359}{10080} = 43.24\%$

#### Q25 Text Solution:

Total number of cakes in store A =  $102 \times \frac{10080}{360} = 2856$

Number of the butter cakes in store A =  $\frac{2856 \times 15}{(15+9)} = 2856 \times \frac{15}{24} = 1785$

Number of the milk cakes in store A =  $2856 - 1785 = 1071$

The number of butter cakes sold in store A =  $\frac{1785 \times 11}{(11+4)} = 1785 \times \frac{11}{15} = 1309$

The number of butter cakes unsold in store A =  $1785 - 1309 = 476$

The number of milk cakes sold in store A =  $\frac{1071 \times 7}{(7+2)} = 1071 \times \frac{7}{9} = 833$

The number of milk cakes unsold in store A =  $1071 - 833 = 238$

Store	Number of butter cakes	Number of milk cakes	Number of butter cakes sold	Number of butter cakes unsold	Number of milk cakes sold	Number of milk cakes unsold
A	1785	1071	1309	476	833	238
B	735	1029	441	294	686	343
C	1715	1029	1029	686	343	686
D	483	805	322	161	483	322
E	714	1014	595	119	845	169

Number of the milk cakes sold in store E = 845

Average number of the butter cakes sold in store A and B =  $\frac{1309+441}{2} = 875$

Required ratio =  $845 : 875 = 169 : 175$

#### Q26 Text Solution:

number of girls who opted biology in schools 'C' and 'D' is 9:10

number of girls in schools 'C' =  $480 - 210 = 270$

number of girls who opted biology in schools 'C' =  $80\% \text{ of } 270 = 216$



the number of girls in school 'D' who opted biology.=x

$$\frac{9}{10} = \frac{216}{x}$$

$$x = \frac{216 \times 10}{9}$$

$$x=240$$

**Q27 Text Solution:**

the number of girls in school 'B' =600-350=250

the number of girls in school 'B' who opted biology=60% of 250=150

number of boys in school 'B' who opted maths=60% of 350=210

The number of boys choosing Mathematics in school 'B' is the percentage of the number of girls choosing Biology in school 'B'.

$$= \frac{210 \times 100}{150}$$

$$=140\%$$

**Q28 Text Solution:**

the sum of number of boys from school's 'A' and 'C' together, who opted biology.

number of boys from school's 'A'=260

number of boys from school's 'C'=210

number of boys from school's 'A' who opted biology.=25% of 260

$$=65$$

number of boys from school's 'C' who opted biology.=50% of 210

$$=105$$

the sum of number of boys from school's 'A' and 'C' together, who opted biology.

$$=65+105=175$$

**Q29 Text Solution:**

the number of boys in school 'B' =350

the number of boys in school 'B' who opted maths=60% of 350

$$=210$$

number of girls in school 'B'=600-350=250

the number of girls in school 'B' who opted math=40% of 250

$$=100$$

$$\text{difference} = 210 - 100 = 110$$

**Q30 Text Solution:**

number of boys in school 'A'=260

number of boys in school 'A' who opted maths=75% of 260=195

number of girls in school 'A'=540-260=280

number of girls in school 'A' who opted biology.=40% of 280=112

sum of number of boys in school 'A' who opted maths and the number of girls in school 'A' who opted biology.

$$=112+195$$

$$=307$$

**Q31 Text Solution:**

Distance traveled by boat A in upstream =  $\frac{1256 \times 3}{(3 + 5)} = 471$

Distance traveled by boat A in downstream =  $1256 - 471 = 785$

Speed of stream for boat A =  $20 \times \frac{15}{100} = 3 \text{ km/hr}$

Similarly,

Boat	Total distance (in km)	Upstream distance (in km)	Downstream distance (in km)	Speed of stream (in km/hr)
Boat A	1256	471	785	3
Boat B	972	378	594	5
Boat C	1120	624	496	4
Boat D	840	364	476	6
Boat E	975	507	468	3

Downstream speed of boat B =  $8 + 5 = 13 \text{ km/hr}$

Upstream speed of boat B =  $8 - 5 = 3 \text{ km/hr}$

Total time taken by boat B =  $\frac{378}{3} + \frac{594}{13} = 126 + 45.69 = 171.69$

Downstream speed of boat D =  $11 + 6 = 17 \text{ km/hr}$

Upstream speed of boat D =  $11 - 6 = 5 \text{ km/hr}$

Total time taken by boat D =  $\frac{364}{5} + \frac{476}{17} = 72.8 + 28 = 100.8 \text{ hr}$



$$\text{Required percentage} = 100 \times \frac{(171.69 - 100.8)}{100.8} = 70.32$$

**Q32 Text Solution:**

$$\text{Distance traveled by boat A in upstream} = \frac{1256 \times 3}{(3 + 5)} = 471$$

$$\text{Distance traveled by boat A in downstream} = 1256 - 471 = 785$$

$$\text{Speed of stream for boat A} = 20 \times \frac{15}{100} = 3 \text{ km/hr}$$

Similarly,

Boat	Total distance (in km)	Upstream distance (in km)	Downstream distance (in km)	Speed of stream (in km/hr)
Boat A	1256	471	785	3
Boat B	972	378	594	5
Boat C	1120	624	496	4
Boat D	840	364	476	6
Boat E	975	507	468	3

$$\text{Relative speed of boat C in upstream} = 8 - 4 = 4 \text{ km/hr}$$

$$\text{Time taken by boat C to complete upstream distance} = \frac{624}{4} = 156 \text{ hours}$$

$$\text{Relative speed of boat C in downstream} = 8 + 4 = 12 \text{ km/hr}$$

$$\text{Time taken by boat C to complete downstream distance} = \frac{496}{12} = 41.33 \text{ hours}$$

$$\text{Total time} = 156 + 41.33 = 197.33 \text{ hours}$$

$$\text{Average speed of the boat C for whole journey} = \frac{\text{total distance}}{\text{total time}} = \frac{1120}{197.33} = 5.67 \text{ km/hr}$$

**Q33 Text Solution:**

$$\text{Distance traveled by boat A in upstream} = \frac{1256 \times 3}{(3 + 5)} = 471$$

$$\text{Distance traveled by boat A in downstream} = 1256 - 471 = 785$$

$$\text{Speed of stream for boat A} = 20 \times \frac{15}{100} = 3 \text{ km/hr}$$

Similarly,

Boat	Total distance (in km)	Upstream distance (in km)	Downstream distance (in km)	Speed of stream (in km/hr)
Boat A	1256	471	785	3
Boat B	972	378	594	5
Boat C	1120	624	496	4
Boat D	840	364	476	6
Boat E	975	507	468	3

Let the speed of boat D be  $s$  km/hr.

$$\text{Speed of boat B} = 1.3s \text{ km/hr}$$

$$\text{Speed of boat B in downstream} = (1.3s + 5) \text{ km/hr}$$

$$\text{Speed of boat D in upstream} = (s - 6) \text{ km/hr}$$

$$\text{ATQ, } \frac{594}{1.3s+5} + \frac{364}{s-6} = 124$$

$$\Rightarrow \frac{297}{1.3s+5} + \frac{182}{s-6} = 62$$

$$\Rightarrow 297s - 1782 + 236.6s + 910$$

$$= 62(1.3s + 5)(s - 6)$$

$$\Rightarrow 533.6s - 872 = 62(1.3s^2 - 2.8s - 30)$$

$$\Rightarrow 80.6s^2 - 707.2s - 988 = 0$$

$$\Rightarrow 403s^2 - 3536s - 4940 = 0$$

$$\Rightarrow (s - 10)(s + 1.225) = 0$$

$$\Rightarrow s = 10$$

$$\text{Speed of boat B} = 1.3s = 1.3 \times 10 = 13 \text{ km/hr}$$

**Q34 Text Solution:**

$$\text{Distance traveled by boat A in upstream} = \frac{1256 \times 3}{(3 + 5)} = 471$$

$$\text{Distance traveled by boat A in downstream} = 1256 - 471 = 785$$

$$\text{Speed of stream for boat A} = 20 \times \frac{15}{100} = 3 \text{ km/hr}$$

Similarly,

Boat	Total distance (in km)	Upstream distance (in km)	Downstream distance (in km)	Speed of stream (in km/hr)
Boat A	1256	471	785	3
Boat B	972	378	594	5
Boat C	1120	624	496	4
Boat D	840	364	476	6
Boat E	975	507	468	3

Let the speed of boat C be  $s$  km/h.

$$\text{Speed of boat C in downstream} = (s + 4) \text{ km/hr}$$

$$\text{Speed of boat C in upstream} = (s - 4) \text{ km/hr}$$

ATQ,

$$\frac{\frac{624}{s-4}}{\frac{496}{s+4}} = \frac{78}{31}$$

$$\Rightarrow \frac{624}{s-4} \times \frac{s+4}{496} = \frac{78}{31}$$

$$\Rightarrow s + 4 = 2(s - 4)$$

$$\Rightarrow s = 12$$

$$\text{Speed of boat C} = 12 \text{ km/hr}$$

**Q35 Text Solution:**

Distance traveled by boat A in upstream =  
 $\frac{1256 \times 3}{(3 + 5)} = 471$

Distance traveled by boat A in downstream =  
 $1256 - 471 = 785$

Speed of stream for boat A =  $20 \times \frac{15}{100} = 3 \text{ km/hr}$

Similarly,

Boat	Total distance (in km)	Upstream distance (in km)	Downstream distance (in km)	Speed of stream (in km/hr)
Boat A	1256	471	785	3
Boat B	972	378	594	5
Boat C	1120	624	496	4
Boat D	840	364	476	6
Boat E	975	507	468	3

Let the speedboat B in still water be  $s \text{ km/hr}$ .

Speed of boat B in downstream =  $(s + 5) \text{ km/hr}$

Speed of boat B in upstream =  $(s - 5) \text{ km/hr}$

$$\text{ATQ, } \Rightarrow \frac{378}{s-5} - \frac{594}{s+5} = 4.5$$

$$\Rightarrow 378s + 1890 - 594s + 2970 = 4.5(s^2 - 25)$$

$$\Rightarrow -48s + 1080 = s^2 - 25$$

$$\Rightarrow s^2 + 48s - 1105 = 0$$

$$\Rightarrow (s + 65)(s - 17) = 0$$

$$s = 17 \text{ km/hr}$$

Speed of boat B in downstream =  $(s + 5) = 17 + 5$   
 $= 22 \text{ km/hr}$

Time taken by boat B to cover the 225 km distance in downstream =  $\frac{225}{22} = 10.23 \text{ hr}$



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## Level-2

**Q1 Text Solution:**

Let's suppose total work is made up of 360 units

Then contribution of each worker in a day-

$$P = \frac{360}{12} = 30 \text{ units per day}$$

$$Q = \frac{360}{15} = 24 \text{ units per day}$$

$$R = \frac{360}{16} = 22.5 \text{ units per day}$$

$$S = \frac{360}{10} = 36 \text{ units per day}$$

$$T = \frac{360}{20} = 18 \text{ units per day}$$

$$U = \frac{360}{9} = 40 \text{ units per day}$$

Work completed in 1st cycle

$$= (30 + 24 + 22.5 + 36 + 18 + 40)$$

$$= 170.5 \text{ units}$$

Work completed in 2<sup>nd</sup> cycle =  $170.5 \times 2 = 341$  units

Since P completes 30 units in 1 day, P will complete the job finally.

**Q2 Text Solution:**

Let's suppose the work is made up of 120 units

$$Q's \text{ contribution in 1 day} = \frac{120}{15} = 8 \text{ units}$$

$$R's \text{ contribution in 1 day} = \frac{120}{16} = 7.5 \text{ units}$$

Q's work on Y is 18% of total work

Time taken by Q to complete the work

$$= \frac{18\% \text{ of } 120}{8} = 2.7 \text{ days}$$

R's work on N is 17% of total work

Time taken by R to complete the work =

$$\frac{17\% \text{ of } 120}{7.5} = 2.72 \text{ days}$$

Hence, Q is the winner.

**Q3 Text Solution:**

Let suppose the work is made up of 100 units

$$\text{Contribution of S in 1 day} = \frac{100}{10} = 10 \text{ units}$$

$$\text{Contribution of T in 1 day} = \frac{100}{20} = 5 \text{ units}$$

$$\text{Combined contribution} = 10 + 5 = 15 \text{ units}$$

Work left for S and T = 75% of (15% + 18%)

No. of days required to finish the work left

$$= \left(\frac{3}{4}\right) \times (15\% + 18\%) \text{ of } 100 \div 15$$

$$= 0.75 \times \left(\frac{33}{100}\right) \times \left(\frac{100}{15}\right)$$

$$= 1.65 \text{ days}$$

**Q4 Text Solution:**

Work completed by R and T in 1 day together =

$$\left(\frac{1}{16}\right) + \left(\frac{1}{20}\right) = 0.1125$$

Work completed by R and T together in 8 days

$$= 0.9 = 90\%$$

Total time taken by S to complete the whole work

$$= 10 \text{ days}$$

Which means S completes 10% of work in 1 day.

Therefore, S will take 1 day to finish the work.

**Q5 Text Solution:**

Let's suppose the work is made of 180 units,

P completes the work in 12 days = 15 units per day

Q completes the work in 15 days = 12 units per day

U completed the work in 9 days = 20 units per day

Together they put in 47 units a day

Work to be completed = X (30%) + N (17%) = 47%

$$\text{No. of day to finish the work} = \frac{47\% \text{ of } 180 \text{ units}}{47} =$$

$$1.8 \text{ days}$$

**Q6 Text Solution:**

Number of persons who traveled by train in city

$$A = \frac{440}{55} \times 45 = 360$$

Number of males who traveled by bus in city A =

$$\frac{440 \times 6}{(6 + 5)} = 240$$

Number of females who traveled by bus in city

$$A = 440 - 240 = 200$$

Number of males who traveled by train in city A

$$= \frac{360 \times 5}{(5 + 4)} = 200$$



Number of females who traveled by train in city

$$A = 360 - 200 = 160$$

Similarly,

City	Number of persons who travelled by bus	Number of persons who travelled by train	Number of males who travelled by bus	Number of females who travelled by bus	Number of males who travelled by train	Number of females who travelled by train
A	440	360	240	200	200	160
B	240	360	150	90	190	170
C	450	300	240	210	180	120
D	270	330	150	120	180	150

$$\text{Required average} = \frac{(160 + 240 + 150)}{3} = 183.33$$

#### Q7 Text Solution:

Number of persons who traveled by train in city

$$A = \frac{440}{55} \times 45 = 360$$

Number of males who traveled by bus in city A =

$$\frac{440 \times 6}{(6 + 5)} = 240$$

Number of females who traveled by bus in city

$$A = 440 - 240 = 200$$

Number of males who traveled by train in city A

$$= \frac{360 \times 5}{(5 + 4)} = 200$$

Number of females who traveled by train in city

$$A = 360 - 200 = 160$$

Similarly,

City	Number of persons who travelled by bus	Number of persons who travelled by train	Number of males who travelled by bus	Number of females who travelled by bus	Number of males who travelled by train	Number of females who travelled by train
A	440	360	240	200	200	160
B	240	360	150	90	190	170
C	450	300	240	210	180	120
D	270	330	150	120	180	150

$$\text{Required percentage} = \frac{(240 - 150)}{150} \times 100 = \frac{900}{15} = 60\%$$

#### Q8 Text Solution:

Number of persons who traveled by train in city

$$A = \frac{440}{55} \times 45 = 360$$

Number of males who traveled by bus in city A =

$$\frac{440 \times 6}{(6 + 5)} = 240$$

Number of females who traveled by bus in city

$$A = 440 - 240 = 200$$

Number of males who traveled by train in city A

$$= \frac{360 \times 5}{(5 + 4)} = 200$$

Number of females who traveled by train in city

$$A = 360 - 200 = 160$$

Similarly,

City	Number of persons who travelled by bus	Number of persons who travelled by train	Number of males who travelled by bus	Number of females who travelled by bus	Number of males who travelled by train	Number of females who travelled by train
A	440	360	240	200	200	160
B	240	360	150	90	190	170
C	450	300	240	210	180	120
D	270	330	150	120	180	150

$$\text{Required number} = (240 + 150 + 120 + 150) = 660$$

#### Q9 Text Solution:

Number of persons who traveled by train in city

$$A = \frac{440}{55} \times 45 = 360$$

Number of males who traveled by bus in city A =

$$\frac{440 \times 6}{(6 + 5)} = 240$$

Number of females who traveled by bus in city

$$A = 440 - 240 = 200$$

Number of males who traveled by train in city A

$$= \frac{360 \times 5}{(5 + 4)} = 200$$

Number of females who traveled by train in city

$$A = 360 - 200 = 160$$

Similarly,

City	Number of persons who travelled by bus	Number of persons who travelled by train	Number of males who travelled by bus	Number of females who travelled by bus	Number of males who travelled by train	Number of females who travelled by train
A	440	360	240	200	200	160
B	240	360	150	90	190	170
C	450	300	240	210	180	120
D	270	330	150	120	180	150

$$\text{Total revenue} = 360 \times 24 + 440 \times 30 = 8640 + 13200 = \text{Rs. } 21840$$

#### Q10 Text Solution:

Number of persons who traveled by train in city

$$A = \frac{440}{55} \times 45 = 360$$

Number of males who traveled by bus in city A =

$$\frac{440 \times 6}{(6 + 5)} = 240$$





Number of females who traveled by bus in city

$$A = 440 - 240 = 200$$

Number of males who traveled by train in city A

$$= \frac{360 \times 5}{(5 + 4)} = 200$$

Number of females who traveled by train in city

$$A = 360 - 200 = 160$$

Similarly,

City	Number of persons who travelled by bus	Number of persons who travelled by train	Number of males who travelled by bus	Number of females who travelled by bus	Number of males who travelled by train	Number of females who travelled by train
A	440	360	240	200	200	160
B	240	360	150	90	190	170
C	450	300	240	210	180	120
D	270	330	150	120	180	150

$$\text{Required ratio} = 200 : (180 + 180) = 200 : 360 = 5 : 9$$

#### Q11 Text Solution:

Common solution:

Let the quantities of apples sold by A, B, C and D are  $72x$  kg,  $108x$  kg,  $126x$  kg and  $54x$  kg.

$$\text{So, quantity of oranges sold by A} = \frac{72x}{1.6} = 45x \text{ kg}$$

$$\text{Quantity of oranges sold by B} = \frac{108x}{1.2} = 90x \text{ kg}$$

$$\text{Quantity of oranges sold by C} = \frac{126x}{2} = 63x \text{ kg}$$

$$\text{And quantity of oranges sold by D} = \frac{54x}{1.2} = 45x \text{ kg}$$

Since, difference between the quantities of apples sold by B and C is 4 kg

So,

$$126x - 108x = 4$$

And total quantity of oranges sold by A and B:

$$(45 + 90) \times \frac{4}{18} = 30 \text{ kg}$$

#### Q12 Text Solution:

Common solution is same:

Since, quantity of oranges sold by A is 15 kg.

So,

$$45x = 15$$

And total quantity of apples sold by B, C and D together:

$$(108 + 126 + 54) \times \frac{1}{3} = 96 \text{ kg}$$

$$\text{Required average} = \frac{96}{3} = 32 \text{ kg}$$

#### Q13 Text Solution:

Common solution is same:

Total quantity of apples sold by A and B together =  $72x + 108x = 180x$  kg

Total quantity of oranges sold by C and D together =  $63x + 45x = 108x$  kg

$$\text{Required ratio} = 180x : 108x = 5 : 3$$

#### Q14 Text Solution:

Common solution is same:

Since, total quantity of oranges sold by A, B, C, D and E =  $5 \times 7 = 35$  kg

And quantity of oranges sold by E = 8 kg

So,

$$45x + 90x + 63x + 45x = 35 - 8$$

$$243x = 27$$

$$x = \frac{1}{9}$$

Now, sum of the pie chart:

$$(72 + 108 + 126 + 54) \times \frac{1}{9} = 40 \text{ kg}$$

#### Q15 Text Solution:

Common solution is same:

Since, difference between quantities of apples and oranges sold by A is 6 kg.

So,

$$72x - 45x = 6$$

$$x = \frac{2}{9}$$

Now, total quantity of apples sold by A, B, C and D together:

$$(72 + 108 + 126 + 54) \times \frac{2}{9} = 80 \text{ kg}$$

And total quantity of oranges sold by A, B, C and D together:

$$(45 + 90 + 63 + 45) \times \frac{2}{9} = 54 \text{ kg}$$

$$\text{Required difference} = 80 - 54 = 26 \text{ kg}$$

#### Q16 Text Solution:

Let the cost price of pencil =  $6p$

$$\text{So cost price of pen} = 6p \times \frac{7}{6} = 7p$$



We know, marked price – cost price = discount + profit

From given data, when we take minimum discount of Rs.80 so maximum profit will be making which is equal to Rs.160

So, we can say here discount+profit = (80+160) = 240Rs.

Now in question mentioned mohit sold pair at minimum profit, so discount will be maximum

Maximum discount = 240 – 40 = 200

Given profit on pen = Rs.60

So, pencil sold at loss of Rs.20(because minimum profit is Rs.40)

Selling price of pen = (7p + 60) Rs.

And selling price of pencil = (6p – 20) Rs.

According to question,

$$\frac{6p-20}{7p+60} = \frac{7}{9}$$

$$54p - 180 = 49p + 420$$

$$5p = 600$$

$$p = 120$$

Selling price of pen = (7 × 120 + 60) = 900Rs.

Total discount allowed on pen = 1050 – 900 = Rs.150

So, total discount allowed on pencil = (200 – 150) = Rs.50

Required percentage =  $\frac{50}{150} \times 100 = 33\frac{1}{3}\%$

#### Q17 Text Solution:

Let marked price of copy = 3c Rs.

So, marked price of book =  $3c \times \frac{5}{3} = 5c$  Rs.

Now, selling price of book = (5c – 44) Rs.

And, cost price of book = (5c – 28) Rs.

From given data, when we take minimum discount of Rs. 60 so, maximum profit will be making which is equal to Rs. 100

So, we can say here, discount + profit = (60 + 100) = 160 Rs.

Now in question mentioned Mohit sold pair at minimum profit, so discount will be maximum

So, maximum discount = 160 – 60 = 100 Rs.

So, total profit on copy = 60 + 16 = 76 Rs.

And, total discount allowed on copy = 100 – 44 = 56 Rs.

Selling price of copy = (3c – 56) Rs.

And cost price of copy = (3c – 56) – 76 = (3c – 132) Rs.

Give, (5c – 28) + (3c – 132) = 800

$$8c - 160 = 800$$

$$8c = 960$$

$$c = 120 \text{ Rs.}$$

Required ratio = (3 × 120 – 132) : (5 × 120 – 28) = 228 : 572 = 57 : 143

#### Q18 Text Solution:

Let cost price of eraser = 80e

So, mark price of eraser =  $80e \times \frac{5}{4} = 100e$

And selling price of eraser =  $100e \times \frac{90}{100} = 90e$

Total discount allowed on eraser = 100e – 90e = 10e

And total profit gets by mohit on eraser = 90e – 80e = 10e

From given data, when we taken minimum discount of Rs.70 so maximum profit will be making which is equal to Rs.150

Marked price of cutter =  $100e \times \frac{26}{25} = 104e$

So we can say here, discount + profit = (70+150) = Rs.220

Now we can say total profit on cutter = (150 – 10e)

And total discount allowed on cutter = (70 – 10e)

Selling price of cutter = (114e – 70)

Cutter sold at 25% profit

ATQ,

$$\frac{150-10e}{114e-70} = \frac{1}{5}$$

$$750 - 50e = 114e - 70$$

$$3 = Rs.5$$

Cost price of eraser =  $80 \times 5 = 400Rs.$

And, cost price of cutter = Rs.400



Required difference =  $(400+48) - (400-120)$   
 = Rs.168

**Q19. Text Solution:**

The ratio of the selling price of X & Y for shopkeeper C = 1.5

Let,

S.P. of X  $\Rightarrow$  300

S.P. of Y  $\Rightarrow$  200

So, C.P. of Y = C.P. of X  $\frac{300}{150} \times 100 = 200$

Profit on Y = 0%

**Q20. Text Solution:**

For shopkeeper D

Let S.P. of article X = 120x

So, S.P. of article Y = 100x

Profit of X =  $\frac{120x \times 90}{190} = 540$

x = 9.5

S.P. of article X = 1140

S.P. of article Y = 950

CP of article X = 1140 - 540 = 600

CP of article Y = 950 - 540 = 410

Required % =  $\frac{410}{600} \times 100 = 68.33\%$

**Q21. Text Solution:**

Let C.P. of article X = 100x

For shopkeeper S.P. of Article X  
 =  $\frac{100x \times 140}{100} = 140x$

Profit = 40x

So, Profit earned on article Y = 40x

S.P. of article Y =  $\frac{140x}{8} \times 100 = 175x$

Profit% =  $\frac{40x}{175x-40x} \times 100 = \frac{800}{27}\%$

For shopkeeper E

C.P. of article X = 100x

S.P. of article X = 120x

So, S.P. of article Y =  $\frac{120x}{6} \times 10 = 200x$

Profit% =  $\frac{20x}{200x-20x} \times 100 = \frac{200}{18}\%$

Ratio =  $\frac{800}{27} \times \frac{18}{200} = \frac{8}{3}$

**Q22. Text Solution:**

For shopkeeper E

Let S.P. of article X = 120x

So, S.P. of article Y = 200x

Profit on article X =  $\frac{120x}{120} \times 20 = 20x$

So, profit on article Y =  $\frac{20x}{4} \times 5 = 25x$

Total profit% =  $\frac{20x+25x}{100x+175x} \times 100 \approx 16\%$

**Q23. Text Solution:**

For shopkeeper B  $\rightarrow$

Let S.P. of article X = 160x

C.P. of article X = 100x

S.P. of article Y = 160x

Profit on X = 60x

For shopkeeper C  $\rightarrow$

S.P. of article of article X =  $\frac{60x}{50} \times 150 = 180x$

S.P. of article Y =  $\frac{180x}{3} \times 2 = 120x$

Required ratio =  $\frac{160x}{120x} = \frac{4}{3}$

**Q24 Text Solution:**

For total bikes:

$X + 20 + X + 5 + 2X + X = 100$

$5X + 25 = 100$

$X = 15$

For electric bikes:

$40 + Y + Y + 10 + 20 = 100$

$2Y + 70 = 100$

$Y = 15$

Total number of bikes in showroom A =  $35 \times \frac{5500}{100}$   
 = 1925

Total number of electric bikes in showroom A =  $40 \times \frac{1500}{100} = 600$

Total number of petrol bikes in showroom A =  $1925 - 600 = 1325$

Total number of electric bikes sold by showroom A =  $\frac{7}{10} \times 600 = 420$

Total number of unsold electric bikes in showroom A =  $600 - 420 = 180$

Total number of petrol bikes sold by showroom A =  $\frac{4}{5} \times 1325 = 1060$

Total number of unsold petrol bikes in showroom A =  $1325 - 1060 = 265$



Similarly,

Showrooms	Total bikes	Total electric bikes	Total petrol bikes	Electric bikes sold	Electric bikes unsold	Petrol bikes sold	Petrol bikes unsold
A	1925	600	1325	420	180	1060	265
B	1100	225	875	180	45	625	250
C	1650	375	1275	225	150	935	340
D	825	300	525	225	75	450	75
Total	5500	1500	4000	1050	450	3070	930

$$\text{Required percent} = \frac{625}{1100} \times 100$$

$$= 56.81$$

### Q25 Text Solution:

For total bikes:

$$X + 20 + X + 5 + 2X + X = 100$$

$$5X + 25 = 100$$

$$X = 15$$

For electric bikes:

$$40 + Y + Y + 10 + 20 = 100$$

$$2Y + 70 = 100$$

$$Y = 15$$

$$\text{Total number of bikes in showroom A} = 35 \times \frac{5500}{100}$$

$$= 1925$$

$$\text{Total number of electric bikes in showroom A} = 40 \times \frac{1500}{100} = 600$$

$$\text{Total number of petrol bikes in showroom A} = 1925 - 600 = 1325$$

$$\text{Total number of electric bikes sold by showroom A} = \frac{7}{10} \times 600 = 420$$

$$\text{Total number of unsold electric bikes in showroom A} = 600 - 420 = 180$$

$$\text{Total number of petrol bikes sold by showroom A} = \frac{4}{5} \times 1325 = 1060$$

$$\text{Total number of unsold petrol bikes in showroom A} = 1325 - 1060 = 265$$

Similarly,

Showrooms	Total bikes	Total electric bikes	Total petrol bikes	Electric bikes sold	Electric bikes unsold	Petrol bikes sold	Petrol bikes unsold
A	1925	600	1325	420	180	1060	265
B	1100	225	875	180	45	625	250
C	1650	375	1275	225	150	935	340
D	825	300	525	225	75	450	75
Total	5500	1500	4000	1050	450	3070	930

$$\text{Total number of unsold petrol bikes in showroom A and D together} = 265 + 75 = 340$$

Total number of electric bikes sold by showroom B and C together =  $375 + 225 = 600$   
Required ratio = 17:30

### Q26 Text Solution:

For total bikes:

$$X + 20 + X + 5 + 2X + X = 100$$

$$5X + 25 = 100$$

$$X = 15$$

For electric bikes:

$$40 + Y + Y + 10 + 20 = 100$$

$$2Y + 70 = 100$$

$$Y = 15$$

$$\text{Total number of bikes in showroom A} = 35 \times \frac{5500}{100}$$

$$= 1925$$

$$\text{Total number of electric bikes in showroom A} = 40 \times \frac{1500}{100} = 600$$

$$\text{Total number of petrol bikes in showroom A} = 1925 - 600 = 1325$$

$$\text{Total number of electric bikes sold by showroom A} = \frac{7}{10} \times 600 = 420$$

$$\text{Total number of unsold electric bikes in showroom A} = 600 - 420 = 180$$

$$\text{Total number of petrol bikes sold by showroom A} = \frac{4}{5} \times 1325 = 1060$$

$$\text{Total number of unsold petrol bikes in showroom A} = 1325 - 1060 = 265$$

Similarly,

Showrooms	Total bikes	Total electric bikes	Total petrol bikes	Electric bikes sold	Electric bikes unsold	Petrol bikes sold	Petrol bikes unsold
A	1925	600	1325	420	180	1060	265
B	1100	225	875	180	45	625	250
C	1650	375	1275	225	150	935	340
D	825	300	525	225	75	450	75
Total	5500	1500	4000	1050	450	3070	930

$$\text{Required central angle} = \frac{360 \times 1275}{4000} = 114.75$$

Option 'b' is the correct answer.

### Q27 Text Solution:

For total bikes:

$$X + 20 + X + 5 + 2X + X = 100$$

$$5X + 25 = 100$$

$$X = 15$$



For electric bikes:

$$40 + Y + Y + 10 + 20 = 100$$

$$2Y + 70 = 100$$

$$Y = 15$$

$$\text{Total number of bikes in showroom A} = 35 \times \frac{5500}{100} = 1925$$

$$\text{Total number of electric bikes in showroom A} = 40 \times \frac{1500}{100} = 600$$

$$\text{Total number of petrol bikes in showroom A} = 1925 - 600 = 1325$$

$$\text{Total number of electric bikes sold by showroom A} = \frac{7}{10} \times 600 = 420$$

$$\text{Total number of unsold electric bikes in showroom A} = 600 - 420 = 180$$

$$\text{Total number of petrol bikes sold by showroom A} = \frac{4}{5} \times 1325 = 1060$$

$$\text{Total number of unsold petrol bikes in showroom A} = 1325 - 1060 = 265$$

Similarly,

Showrooms	Total bikes	Total electric bikes	Total petrol bikes	Electric bikes sold	Electric bikes unsold	Petrol bikes sold	Petrol bikes unsold
A	1925	600	1325	420	180	1060	265
B	1100	225	875	180	65	625	250
C	1650	375	1275	225	150	935	340
D	825	300	525	225	75	450	75
Total	5500	1500	4000	1050	450	3070	930

Total number of petrol bikes sold by all the four showrooms = 3070

Total number of electric bikes sold by all the four showrooms = 1050

$$\text{Required difference} = 3070 - 1050 = 2020$$

Option 'a' is the correct answer.

### Q28. Text Solution:

The total candidates who got the desired post in MNC R & T

$$\begin{aligned}
 &= 24000 \times \frac{17.5}{100} \times \frac{100-70}{100} \times \frac{75}{100} \times \frac{40}{100} \\
 &+ 24000 \times \frac{30}{100} \times \frac{100-65}{100} \times \frac{75}{100} \times \frac{20}{100} \\
 &= 945 \times \frac{40}{100} + 1890 \times \frac{20}{100} \\
 &= 378 + 378 \\
 &= 756
 \end{aligned}$$

Total candidates appeared in the interview for MNC S

$$\begin{aligned}
 &= 24000 \times \frac{25}{100} \times \frac{100-75}{100} \times \frac{60}{100} = 900 \\
 \text{Required \%} &= \frac{756}{900} \times 100 = 84\%
 \end{aligned}$$

### Q29. Text Solution:

Total candidates who get the desired post in MNC P

$$\begin{aligned}
 &= 24000 \times \frac{12.5}{100} \times \frac{100-60}{100} \times \frac{75}{100} \times \frac{20}{100} = \\
 &180
 \end{aligned}$$

Total candidates who get the desired post in MNC S

$$\begin{aligned}
 &= 24000 \times \frac{25}{100} \times \frac{100-75}{100} \times \frac{60}{100} \times \frac{2}{9} = 200 \\
 \text{Required ratio} &= 180:200 \\
 &= 9:10
 \end{aligned}$$

### Q30. Text Solution:

Total candidates who get the desired post in MNC Q

$$\begin{aligned}
 &= 24000 \times \frac{15}{100} \times \frac{100-80}{100} \times \frac{60}{100} \times \frac{25}{100} \\
 &= 108
 \end{aligned}$$

Girl candidates who get the desired post in MNC Q

$$= 108 \times \frac{4}{9} = 48$$

Total girl candidates who applied for the executive post in MNC Q

$$\begin{aligned}
 &= 24000 \times \frac{15}{100} \times \frac{2}{5} = 1440 \\
 \text{Required percentage} &= \frac{48}{1440} \times 100 = 3\frac{1}{3}\%
 \end{aligned}$$

### Q31. Text Solution:

$$\begin{aligned}
 &\text{Required difference} \\
 &= 24000 \times \frac{25}{100} \times \frac{25}{100} \times \frac{60}{100} - 24000 \times \frac{12.5}{100} \\
 &\times \frac{40}{100} \times \frac{75}{100} = 900 - 900 = 0
 \end{aligned}$$

### Q32. Text Solution:

Total candidates who get the desired post in MNC P

$$\begin{aligned}
 &= 24000 \times \frac{12.5}{100} \times \frac{100-60}{100} \times \frac{75}{100} \times \frac{20}{100} = \\
 &180
 \end{aligned}$$

### Q33 Text Solution:

Common Solution:



For employee A:

Ratio of number of days worked for in 2019 to the number of days worked for in 2020 =  $1.2 = 6:5$

5

Since, 2019 is a non-leap year.

So, number of days in 2019 = 365

Since, he has taken 65 holidays in 2019.

So, number of days he worked for in 2019 =  $365 - 65 = 300$

And number of days he worked for in 2020 =  $300 \times \frac{5}{6} = 250$

Since, 2020 is a leap year.

So, number of days in 2020 = 366

And number of holidays taken by him in 2020 =  $366 - 250 = 116$

Similarly, we can calculate for other employees as well.

Em ploy ee	No. of days worked for in 2019	No. of holidays taken in 2019	No. of days worked for in 2020	No. of holidays taken in 2020
A	300	65	250	116
B	280	85	200	166
C	224	141	320	46
D	330	35	300	66

Total number of holidays taken by all the 4 employees together in 2019 =  $65 + 85 + 141 + 35 = 326$

Total number of holidays taken by all the 4 employees together in 2020 =  $116 + 166 + 46 + 66 = 394$

Required difference =  $394 - 326 = 68$

#### Q34 Text Solution:

Common Solution:

For employee A:

Ratio of number of days worked for in 2019 to the number of days worked for in 2020 =  $1.2 = 6:5$

5

Since, 2019 is a non-leap year.

So, number of days in 2019 = 365

Since, he has taken 65 holidays in 2019.

So, number of days he worked for in 2019 =  $365 - 65 = 300$

And number of days he worked for in 2020 =  $300 \times \frac{5}{6} = 250$

Since, 2020 is a leap year.

So, number of days in 2020 = 366

And number of holidays taken by him in 2020 =  $366 - 250 = 116$

Similarly, we can calculate for other employees as well.

Em ploy ee	No. of days worked for in 2019	No. of holidays taken in 2019	No. of days worked for in 2020	No. of holidays taken in 2020
A	300	65	250	116
B	280	85	200	166
C	224	141	320	46
D	330	35	300	66

Total number of days for which B and D worked in 2019:

$280 + 330 = 610$

Total number of days for which B and D worked in 2020:

$200 + 300 = 500$

Required percentage =  $\frac{610-500}{500} \times 100 = 22\%$

#### Q35 Text Solution:

Common Solution:

For employee A:

Ratio of number of days worked for in 2019 to the number of days worked for in 2020 =  $1.2 = 6:5$

5

Since, 2019 is a non-leap year.

So, number of days in 2019 = 365





Since, he has taken 65 holidays in 2019.  
 So, number of days he worked for in 2019 =  $365 - 65 = 300$   
 And number of days he worked for in 2020 =  $300 \times \frac{5}{6} = 250$   
 Since, 2020 is a leap year.  
 So, number of days in 2020 = 366  
 And number of holidays taken by him in 2020 =  $366 - 250 = 116$   
 Similarly, we can calculate for other employees as well.

Em ploy ee	No. of days worked for in 2019	No. of holidays taken in 2019	No. of days worked for in 2020	No. of holidays taken in 2020
A	300	65	250	116
B	280	85	200	166
C	224	141	320	46
D	330	35	300	66

Number of days for which D worked in 2019 = 330  
 So, number of days for which E worked in 2019 =  $330 \times \frac{9}{11} = 270$   
 And number of holidays taken by E in 2019 =  $365 - 270 = 95$   
 Number of days for which D worked in 2020 = 300  
 So, number of days for which E worked in 2019 =  $300 \times \frac{14}{15} = 280$   
 And number of holidays taken by E in 2020 =  $366 - 280 = 86$   
 Total number of holidays taken by E in 2019 and 2020 together:  
 $95 + 86 = 181$

**Q36 Text Solution:**

Common Solution:

For employee A:

Ratio of number of days worked for in 2019 to the number of days worked for in 2020 =  $1.2 = 6:5$

Since, 2019 is a non-leap year.

So, number of days in 2019 = 365

Since, he has taken 65 holidays in 2019.

So, number of days he worked for in 2019 =  $365 - 65 = 300$

And number of days he worked for in 2020 = 250

Since, 2020 is a leap year.

So, number of days in 2020 = 366

And number of holidays taken by him in 2020 =  $366 - 250 = 116$

Similarly, we can calculate for other employees as well.

Em ploy ee	No. of days worked for in 2019	No. of holidays taken in 2019	No. of days worked for in 2020	No. of holidays taken in 2020
A	300	65	250	116
B	280	85	200	166
C	224	141	320	46
D	330	35	300	66

Total number of holidays taken by all the 4 employees together in 2019 =  $65 + 85 + 141 + 35 = 326$

Total number of days worked by all the 4 employees together in 2020 =  $250 + 200 + 320 + 300 = 1070$

Required difference =  $1070 - 326 = 744$

**Q37 Text Solution:**

Common Solution:

For employee A:

Ratio of number of days worked for in 2019 to the number of days worked for in 2020 =  $1.2 = 6:$



5

Since, 2019 is a non-leap year.

So, number of days in 2019 = 365

Since, he has taken 65 holidays in 2019.

So, number of days he worked for in 2019 =  $365 - 65 = 300$

And number of days he worked for in 2020 =  $300 \times \frac{5}{6} = 250$

Since, 2020 is a leap year.

So, number of days in 2020 = 366

And number of holidays taken by him in 2020 =  $366 - 250 = 116$

Similarly, we can calculate for other employees as well.

Em ploy ee	No. of days worked for in 2019	No. of holidays taken in 2019	No. of days worked for in 2020	No. of holidays taken in 2020
<b>A</b>	300	65	250	116
<b>B</b>	280	85	200	166
<b>C</b>	224	141	320	46
<b>D</b>	330	35	300	66

Number of holidays taken by A in 2020 = 116

Number of holidays taken by B in 2020 = 166

Number of holidays taken by D in 2020 = 66

Required average =  $\frac{116+166+66}{3} = 116$



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## Level-3

**Q1 Text Solution:**

Common Solution:

Number of female joiners in company P =  $90 \times 120 / 360 = 30$

Number of male joiners in company P =  $40 - 30 = 10$

Number of female joiners in company Q =  $90 \times 40 / 360 = 10$

Number of male joiners in company Q =  $30 - 10 = 20$

Number of female joiners in company R =  $90 \times 40 / 360 = 10$

Number of male joiners in company R =  $30 - 10 = 20$

Number of female joiners in company S =  $90 \times 80 / 360 = 20$

Number of male joiners in company S =  $40 - 20 = 20$

Number of female joiners in company T =  $90 \times 80 / 360 = 20$

Number of male joiners in company T =  $30 - 20 = 10$

Companies	Male new joiners	Female new joiners
P	10	30
Q	20	10
R	20	10
S	20	20
T	10	20

Let the initial number of male to female employees in company P is '9x' and '7x' respectively.

According to the question:

$$9x - 7x = 20$$

$$x = 10$$

Initial number of male employees in company P =  $9x = 90$

Initial number of female employees in company P =  $7x = 70$

Required sum =  $(90 + 10) + (70 + 30)$

$$= 100 + 100$$

$$= 200$$

**Q2 Text Solution:**

Common Solution:

Number of female joiners in company P =  $90 \times 120 / 360 = 30$

Number of male joiners in company P =  $40 - 30 = 10$

Number of female joiners in company Q =  $90 \times 40 / 360 = 10$

Number of male joiners in company Q =  $30 - 10 = 20$

Number of female joiners in company R =  $90 \times 40 / 360 = 10$

Number of male joiners in company R =  $30 - 10 = 20$

Number of female joiners in company S =  $90 \times 80 / 360 = 20$

Number of male joiners in company S =  $40 - 20 = 20$

Number of female joiners in company T =  $90 \times 80 / 360 = 20$

Number of male joiners in company T =  $30 - 20 = 10$

Companies	Male new joiners	Female new joiners
P	10	30
Q	20	10
R	20	10
S	20	20



T	10	20
---	----	----

Let the initial number of male and female employees in company T is 'x + 40' and 'x' respectively.

According to the question:

$$[(x + 40) + 10] + (x + 20) = 150$$

$$2x = 80$$

$$x = 40$$

Initial number of male employees in company T = (x + 40) = 80

The initial number of female employees in the company T = x = 40

The total initial number of employees in company T = 80 + 40 = 120

$$\text{Required percent} = 40/120 \times 100 = 33\frac{1}{3}\%$$

### Q3 Text Solution:

Common Solution:

$$\text{Number of female joiners in company P} = 90 \times \frac{120}{360} = 30$$

$$\text{Number of male joiners in company P} = 40 - 30 = 10$$

$$\text{Number of female joiners in company Q} = 90 \times \frac{40}{360} = 10$$

$$\text{Number of male joiners in company Q} = 30 - 10 = 20$$

$$\text{Number of female joiners in company R} = 90 \times \frac{40}{360} = 10$$

$$\text{Number of male joiners in company R} = 30 - 10 = 20$$

$$\text{Number of female joiners in company S} = 90 \times \frac{80}{360} = 20$$

$$\text{Number of male joiners in company S} = 40 - 20 = 20$$

$$\text{Number of female joiners in company T} = 90 \times \frac{80}{360} = 20$$

Number of male joiners in company T = 30 - 20 = 10

Companies	Male new joiners	Female new joiners
P	10	30
Q	20	10
R	20	10
S	20	20
T	10	20

Since, total female employees in companies P and R together is 110.

Let number of female employees in companies P and R is 'x' and '110 - x' respectively.

Number of male employees in company P = (x + 20)

Number of male employees in company R = (110 - x) + 20 = (130 - x)

According to the question:

$$\frac{(130 - x) + 20}{(110 - x) + 10} = \frac{3}{2}$$

$$300 - 2x = 360 - 3x$$

$$x = 60$$

Required ratio = (x + 20): x

$$= 80: 60$$

$$= 4: 3$$

### Q4 Text Solution:

Common Solution:

$$\text{Number of female joiners in company P} = 90 \times \frac{120}{360} = 30$$

$$\text{Number of male joiners in company P} = 40 - 30 = 10$$

$$\text{Number of female joiners in company Q} = 90 \times \frac{40}{360} = 10$$

$$\text{Number of male joiners in company Q} = 30 - 10 = 20$$

$$\text{Number of female joiners in company R} = 90 \times \frac{40}{360} = 10$$



Number of male joiners in company R =  $30 - 10$   
= 20

Number of female joiners in company S =  $90 \times \frac{80}{360} = 20$

Number of male joiners in company S =  $40 - 20$   
= 20

Number of female joiners in company T =  $90 \times \frac{80}{360} = 20$

Number of male joiners in company T =  $30 - 20$   
= 10

Companies	Male new joiners	Female new joiners
P	10	30
Q	20	10
R	20	10
S	20	20
T	10	20

The difference between the initial number of male and female employees in company R is 20 and the ratio of initial number of male and female employees in company R is 7: 5.

Total initial number of male and female employees in company R =  $20 \times 7 = 140$

Total initial number of male and female employees in company S =  $140 + 40 = 180$

Total new joiners in company S = 40

Required fraction =  $40/180$

=  $1/4$

#### Q5 Text Solution:

Common Solution:

Number of female joiners in company P =  $90 \times \frac{120}{360} = 30$

Number of male joiners in company P =  $40 - 30$   
= 10

Number of female joiners in company Q =  $90 \times \frac{40}{360} = 10$

Number of male joiners in company Q =  $30 - 10$   
= 20

Number of female joiners in company R =  $90 \times \frac{40}{360} = 10$

Number of male joiners in company R =  $30 - 10$   
= 20

Number of female joiners in company S =  $90 \times \frac{80}{360} = 20$

Number of male joiners in company S =  $40 - 20$   
= 20

Number of female joiners in company T =  $90 \times \frac{80}{360} = 20$

Number of male joiners in company T =  $30 - 20$   
= 10

Companies	Male new joiners	Female new joiners
P	10	30
Q	20	10
R	20	10
S	20	20
T	10	20

Let the initial number of male and female employees in company Q is 'x + 10' and 'x' respectively.

According to the question:

$$(x + 10) + 20x + 10 = 43$$

$$3x + 90 = 4x + 40$$

$$x = 50$$

Initial number of male and female employees in company Q is 60 and 50 respectively.

Required ratio = M: 15 = 60: 50

$$M: 15 = 18: 15$$

$$M = 18$$

#### Q6 Text Solution:

Total number of bikes sold by all showrooms together =  $\frac{6600 \times 9}{(9 + 2)} = 5400$

Total number of cars sold by all showrooms together =  $6600 - 5400 = 1200$



Number of cars sold by showroom A =  $1200 \times \frac{25}{100} = 300$

Number of bikes sold by showroom A =  $5400 \times \frac{75}{360} = 1125$

Number of petrol cars sold by showroom A = 120

Number of electric cars sold by showroom A =  $300 - 120 = 180$

Number of petrol bikes sold by showroom A =  $\frac{1125 \times 7}{(7 + 8)} = 525$

Number of electric bikes sold by showroom A =  $1125 - 525 = 600$

Similarly,

Showroom	Number of cars	Number of bikes	Number of petrol cars	Number of electric cars	Number of petrol bikes	Number of electric bikes
A	300	1125	120	180	525	600
B	360	1350	126	234	540	810
C	240	900	132	108	500	400
D	180	1200	108	72	450	750
E	120	825	48	72	495	330

Average of the number of petrol cars sold by showroom A, C and E together =  $\frac{(120 + 132 + 48)}{3} = 100$

Average number of petrol bikes sold by showroom C and D together =  $500 + 450 = 475$

Required ratio =  $100 : 475 = 4 : 19$

#### Q7 Text Solution:

Total number of bikes sold by all showrooms together =  $\frac{6600 \times 9}{(9 + 2)} = 5400$

Total number of cars sold by all showrooms together =  $6600 - 5400 = 1200$

Number of cars sold by showroom A =  $1200 \times \frac{25}{100} = 300$

Number of bikes sold by showroom A =  $5400 \times \frac{75}{360} = 1125$

Number of petrol cars sold by showroom A = 120

Number of electric cars sold by showroom A =  $300 - 120 = 180$

Number of petrol bikes sold by showroom A =  $\frac{1125 \times 7}{(7 + 8)} = 525$

Number of electric bikes sold by showroom A =  $1125 - 525 = 600$

Similarly,

Showroom	Number of cars	Number of bikes	Number of petrol cars	Number of electric cars	Number of petrol bikes	Number of electric bikes
A	300	1125	120	180	525	600
B	360	1350	126	234	540	810
C	240	900	132	108	500	400
D	180	1200	108	72	450	750
E	120	825	48	72	495	330

Number of electric bikes sold by showroom F =  $(810 + 330) \times \frac{140}{100} = 1596$

Number of bikes sold by showroom F =  $1596 \times \frac{(17 + 12)}{12} = 3857$

#### Q8 Text Solution:

Total number of bikes sold by all showrooms together =  $\frac{6600 \times 9}{(9 + 2)} = 5400$

Total number of cars sold by all showrooms together =  $6600 - 5400 = 1200$

Number of cars sold by showroom A =  $1200 \times \frac{25}{100} = 300$

Number of bikes sold by showroom A =  $5400 \times \frac{75}{360} = 1125$

Number of petrol cars sold by showroom A = 120

Number of electric cars sold by showroom A =  $300 - 120 = 180$

Number of petrol bikes sold by showroom A =  $\frac{1125 \times 7}{(7 + 8)} = 525$

Number of electric bikes sold by showroom A =  $1125 - 525 = 600$

Similarly,

Showroom	Number of cars	Number of bikes	Number of petrol cars	Number of electric cars	Number of petrol bikes	Number of electric bikes
A	300	1125	120	180	525	600
B	360	1350	126	234	540	810
C	240	900	132	108	500	400
D	180	1200	108	72	450	750
E	120	825	48	72	495	330

Difference between the number of electric and petrol bike sold by Showroom A and B =  $(525 + 540) - (180 + 234) = 651$





**Q9 Text Solution:**

Total number of bikes sold by all showrooms together =  $\frac{6600 \times 9}{(9+2)} = 5400$

Total number of cars sold by all showrooms together =  $6600 - 5400 = 1200$

Number of cars sold by showroom A =  $1200 \times \frac{25}{100} = 300$

Number of bikes sold by showroom A =  $5400 \times \frac{75}{360} = 1125$

Number of petrol cars sold by showroom A = 120

Number of electric cars sold by showroom A =  $300 - 120 = 180$

Number of petrol bikes sold by showroom A =  $\frac{1125 \times 7}{(7+8)} = 525$

Number of electric bikes sold by showroom A =  $1125 - 525 = 600$

Similarly,

Showroom	Number of cars	Number of bikes	Number of petrol cars	Number of electric cars	Number of petrol bikes	Number of electric bikes
A	300	1125	120	180	525	600
B	360	1350	126	234	540	810
C	240	900	132	108	500	400
D	180	1200	108	72	450	750
E	120	825	48	72	495	330

Number of petrol cars sold by showroom D and number of petrol bikes sold by showroom E together =  $108 + 495 = 603$

Required percentage =  $\frac{603-400}{400} \times 100 = 50.75\%$

**Q10 Text Solution:**

Total number of bikes sold by all showrooms together =  $\frac{6600 \times 9}{(9+2)} = 5400$

Total number of cars sold by all showrooms together =  $6600 - 5400 = 1200$

Number of cars sold by showroom A =  $1200 \times \frac{25}{100} = 300$

Number of bikes sold by showroom A =  $5400 \times \frac{75}{360} = 1125$

Number of petrol cars sold by showroom A = 120

Number of electric cars sold by showroom A =  $300 - 120 = 180$

Number of petrol bikes sold by showroom A =  $\frac{1125 \times 7}{(7+8)} = 525$

Number of electric bikes sold by showroom A =  $1125 - 525 = 600$

Similarly,

Showroom	Number of cars	Number of bikes	Number of petrol cars	Number of electric cars	Number of petrol bikes	Number of electric bikes
A	300	1125	120	180	525	600
B	360	1350	126	234	540	810
C	240	900	132	108	500	400
D	180	1200	108	72	450	750
E	120	825	48	72	495	330

Required percentage =  $\frac{108+72}{750} \times 100 = 24\%$

**Q11 Text Solution:**

From the given information,

Distance covered by train P from source (A) to destination (B) = 31% of 3100 = 961 km

Distance covered by train Q from source (A) to destination (B) = 12% of 3100 = 372 km

Distance covered by train R from source (A) to destination (B) = 17% of 3100 = 527 km

Distance covered by train S from source (A) to destination (B) = 25% of 3100 = 775 km

Distance covered by train T from source (A) to destination (B) = 15% of 3100 = 465 km

Total time taken by train P going from A to B,  
 $= \frac{961}{74.4} \times 60 + 25 \times 5 = 900 \text{ minutes}$   
 $= 15 \text{ hours}$

Total time taken by train Q going from A to B,  
 $= \frac{372}{80} \times 60 + 3 \times 7 = 300 \text{ minutes}$   
 $= 5 \text{ hours}$

Total time taken by train R going from A to B,  
 $= \frac{527}{62} \times 60 + 5 \times 6 = 540 \text{ minutes}$   
 $= 9 \text{ hours}$

Total time taken by train S going from A to B,  
 $= \frac{775}{75} \times 60 + 16 \times 10 = 780 \text{ minutes}$   
 $= 13 \text{ hours}$

Total time taken by train T going from A to B,  
 $= \frac{465}{60} \times 60 + 9 \times 5 = 510 \text{ minutes}$   
 $= 8.5 \text{ hours}$

Total time taken by train P going from B to A,



$$= \frac{6}{5} \times 15 = 18 \text{ hours}$$

Total time taken by train Q going from B to A,

$$= \frac{7}{10} \times 5 = 3.5 \text{ hours}$$

Total time taken by train R going from B to A,

$$= \frac{10}{9} \times 9 = 10 \text{ hours}$$

Total time taken by train S going from B to A,

$$= \frac{12}{13} \times 13 = 12 \text{ hours}$$

Total time taken by train T going from B to A,

$$= \frac{15}{17} \times 8.5 = 7.5 \text{ hours}$$

Train	Distance travelled (in km)	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B (in hours)	Time taken from B-to-A (in hours)
P	961	74.4	25	5	15	18
Q	372	80	3	7	5	3.5
R	527	62	5	6	9	10
S	775	75	16	10	13	12
T	465	60	9	5	8.5	7.5

Running time of train P from B to A =  $18 \times 60 - 25 \times 5 = 955$  minutes = 15.9 hours

Running time of train Q from B to A =  $3.5 \times 60 - 3 \times 7 = 189$  minutes = 3.15 hours

Running time of train R from B to A =  $10 \times 60 - 5 \times 6 = 570$  minutes = 9.5 hours

Running time of train S from B to A =  $12 \times 60 - 16 \times 10 = 560$  minutes = 9.33 hours

Running time of train T from B to A =  $7.5 \times 60 - 9 \times 5 = 405$  minutes = 6.75 hours

Therefore, the average speed of train T is the third highest.

Running speed of train P from B to A =  $\frac{961}{15.9} = 60.4 \text{ km/hr}$

Running speed of train Q from B to A =  $\frac{372}{3.15} = 118.1 \text{ km/hr}$

Running speed of train R from B to A =  $\frac{527}{9.5} = 55.5 \text{ km/hr}$

Running speed of train S from B to A =  $\frac{775}{9.33} = 83 \text{ km/hr}$

Running speed of train T from B to A =  $\frac{465}{6.75} = 68.9 \text{ km/hr}$

Train P: Difference =  $74.4 - 60.4 = 14 \text{ km/hr}$

Train Q: Difference =  $118 - 80 = 38 \text{ km/hr}$

Train R: Difference =  $62 - 55.5 = 6.5 \text{ km/hr}$

Train S: Difference =  $83 - 75 = 8 \text{ km/hr}$

Train T: Difference =  $68.9 - 60 = 8.9 \text{ km/hr}$

Therefore, the difference for Train P between the running speed from A-to-B and the running speed from B-to-A is the second highest.

## Q12 Text Solution:

From the given information,

Distance covered by train P from source (A) to destination (B) = 31% of 3100 = 961 km

Distance covered by train Q from source (A) to destination (B) = 12% of 3100 = 372 km

Distance covered by train R from source (A) to destination (B) = 17% of 3100 = 527 km

Distance covered by train S from source (A) to destination (B) = 25% of 3100 = 775 km

Distance covered by train T from source (A) to destination (B) = 15% of 3100 = 465 km

Total time taken by train P going from A to B,  
 $= \frac{961}{74.4} \times 60 + 25 \times 5 = 900 \text{ minutes}$   
 $= 15 \text{ hours}$

Total time taken by train Q going from A to B,  
 $= \frac{372}{80} \times 60 + 3 \times 7 = 300 \text{ minutes}$   
 $= 5 \text{ hours}$

Total time taken by train R going from A to B,  
 $= \frac{527}{62} \times 60 + 5 \times 6 = 540 \text{ minutes}$   
 $= 9 \text{ hours}$

Total time taken by train S going from A to B,  
 $= \frac{775}{75} \times 60 + 16 \times 10 = 780 \text{ minutes}$   
 $= 13 \text{ hours}$

Total time taken by train T going from A to B,  
 $= \frac{465}{60} \times 60 + 9 \times 5 = 510 \text{ minutes}$   
 $= 8.5 \text{ hours}$

Total time taken by train P going from B to A,  
 $= \frac{6}{5} \times 15 = 18 \text{ hours}$

Total time taken by train Q going from B to A,  
 $= \frac{7}{10} \times 5 = 3.5 \text{ hours}$

Total time taken by train R going from B to A,



$$= \frac{10}{9} \times 9 = 10 \text{ hours}$$

Total time taken by train S going from B to A,

$$= \frac{12}{13} \times 13 = 12 \text{ hours}$$

Total time taken by train T going from B to A,

$$= \frac{15}{17} \times 8.5 = 7.5 \text{ hours}$$

Train	Distance travelled (in km)	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B (in hours)	Time taken from B-to-A (in hours)
P	961	74.4	25	5	15	18
Q	372	80	3	7	5	3.5
R	527	62	5	6	9	10
S	775	75	16	10	13	12
T	465	60	9	5	8.5	7.5

Average speed of train P going from B to A

$$= \frac{961}{18} = 53.4 \text{ km/hr}$$

Average speed of train Q going from B to A

$$= \frac{372}{3.5} = 106.3 \text{ km/hr}$$

Average speed of train R going from B to A

$$= \frac{527}{10} = 52.7 \text{ km/hr}$$

Average speed of train S going from B to A

$$= \frac{775}{12} = 64.6 \text{ km/hr}$$

Average speed of train T going from B to A

$$= \frac{465}{7.5} = 62 \text{ km/hr}$$

Therefore, the average speed of train T is the third highest.

### Q13 Text Solution:

From the given information,

Running speed of train U = 80% of 80 = 64 km/hr

Time taken by train U without stoppage to cover 400 km

$$= \frac{400}{64} = 6 \text{ hours } 15 \text{ minutes}$$

Time taken by train R with stoppage to cover 446.4 km

$$= \frac{446.4}{62} = 7 \text{ hours } 12 \text{ minutes}$$

Time taken by train U in all the stoppages together = 45 + 12 = 57 minutes

So, number of stoppages =  $\frac{57}{3} = 19$  stops

Therefore, number of stoppages is 19.

### Q14 Text Solution:

From the given information,

Running speed of train S going from A-to-B,

$$= 75 \text{ km/h} = \frac{125}{6} \text{ m/s}$$

Running speed of train T going from A-to-B,

$$= 60 \text{ km/h} = \frac{50}{3} \text{ m/s}$$

$$\text{Length of train S} = \frac{125}{6} \times 24 = 500 \text{ meters}$$

$$\text{Length of train T} = \frac{50}{3} \times 27 = 450 \text{ meters}$$

$$\text{Required ratio} = 500 : 450 = 10 : 9$$

Therefore, while going from A-to-B, if train S and train T passes a pole in 24 seconds and 27 seconds, respectively, then the ratio of the length of train S to the length of train T is 10:9.

### Q15 Text Solution:

From the given information,

Distance covered by train P from source (A) to destination (B) = 31% of 3100 = 961 km

Distance covered by train Q from source (A) to destination (B) = 12% of 3100 = 372 km

Distance covered by train R from source (A) to destination (B) = 17% of 3100 = 527 km

Distance covered by train S from source (A) to destination (B) = 25% of 3100 = 775 km

Distance covered by train T from source (A) to destination (B) = 15% of 3100 = 465 km

Total time taken by train P going from A to B,

$$= \frac{961}{74.4} \times 60 + 25 \times 5 = 900 \text{ minutes}$$

$$= 15 \text{ hours}$$

Total time taken by train Q going from A to B,

$$= \frac{372}{80} \times 60 + 3 \times 7 = 300 \text{ minutes}$$

$$= 5 \text{ hours}$$

Total time taken by train R going from A to B,

$$= \frac{527}{62} \times 60 + 5 \times 6 = 540 \text{ minutes}$$

$$= 9 \text{ hours}$$

Total time taken by train S going from A to B,

$$= \frac{775}{75} \times 60 + 16 \times 10 = 780 \text{ minutes}$$

$$= 13 \text{ hours}$$

Total time taken by train T going from A to B,

$$= \frac{465}{60} \times 60 + 9 \times 5 = 510 \text{ minutes}$$

$$= 8.5 \text{ hours}$$



Train	Distance travelled (in km)	Running speed of train from A-to-B (in km/hr)	Number of stoppages	The average time taken by the train on each stoppage (in minutes)	Time taken from A-to-B (in hours)
P	961	74.4	25	5	15
Q	372	80	3	7	5
R	527	62	5	6	9
S	775	75	16	10	13
T	465	60	9	5	8.5

Average speed of train P going from A to B  
 $= \frac{961}{15} = 64.07 \text{ km/hr}$

Average speed of train Q going from A to B  
 $= \frac{372}{5} = 74.4 \text{ km/hr}$

Average speed of train R going from A to B  
 $= \frac{527}{9} = 58.6 \text{ km/hr}$

Average speed of train S going from A to B  
 $= \frac{775}{13} = 59.6 \text{ km/hr}$

Average speed of train T going from A to B  
 $= \frac{465}{8.5} = 54.7 \text{ km/hr}$

Therefore, the average speeds of train R and train S are closest to each other.

#### Q16 Text Solution:

From the given question,

Using the given table chart in the question, we find the following table.

(Table-I)

Month	Positive (+ve)	Negative (-ve)
March	70	30
April	130	70
May	180	180

Using the values of A and B from column chart, we have the following information.

(Table-II)

Month	Positive (+ve)		Negative (-ve)	
	Ahmedabad	Bangalore	Ahmedabad	Bangalore
March	10	60	20	10
April	35	95	30	40
May	50	130	100	80

From this table, we have that total number of tests (Urban + Rural) in Ahmedabad in

March = 10 + 20 = 30

April = 35 + 30 = 65

May = 50 + 100 = 150

From value of C in March, we have

Urban test in Ahmedabad = 20 (+ve and -ve both)

Rural test in Ahmedabad = 10

From value of C in April, we have

Urban test in Ahmedabad = 50

Rural test in Ahmedabad = 15

From value of C in May, we have

Urban test in Ahmedabad = 100 (+ve and -ve both)

Rural test in Ahmedabad = 50

Now, we have last information that in a given month, number of tests found negative in rural area is equal to the number of tests found negative in urban area.

Consider March of Ahmedabad.

Let the number of Rural test found positive/negative =  $R^+/R^-$ ; and Urban test found positive =  $U^+/U^-$

So, we have been given that  $R^- = U^-$

We have from the calculations above that (March in Ahmedabad)

$$U^+ + U^- = 20 \text{ -----(1)}$$

$$R^+ + R^- = 10 \text{ -----(2)}$$

From table I, we have

$$R^- + U^- = 20 \text{ -----(3)}$$

$$R^+ + U^+ = 10 \text{ -----(4)}$$

But since  $R^- = U^- = Y$  (say), we have from (3)

$$R^- = U^- = 10$$

Putting value of  $R^- = U^- = 10$  in (1), (2) and (4), we get

$$U^+ = 10$$

$$R^+ = 0$$

Similarly we find for each month and both the cities.

The following table has all the values filled in.



(Table-III)

Month	Ahmedabad				Bangalore			
	Urban		Rural		Urban		Rural	
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
March	10	10	0	10	45	5	15	5
April	35	15	0	15	50	20	45	20
May	50	50	0	50	80	40	50	40

For the given question,

From table-II,

Number of positive cases in April =  $35 + 95 = 130$

Number of negative cases in March =  $20 + 10 = 30$

Required percentage  

$$= \frac{130-30}{30} \times 100 = 333.33\%$$

Therefore, the number of positive cases in April in the two cities together is 333.33% more than the number of negative cases in the two cities in March.

#### Q17 Text Solution:

From the given question,

Using the given table chart in the question, we find the following table.

(Table-I)

Month	Positive (+ve)	Negative (-ve)
March	70	30
April	130	70
May	180	180

Using the values of A and B from column chart, we have the following information.

(Table-II)

Month	Positive (+ve)		Negative (-ve)	
	Ahmedabad	Bangalore	Ahmedabad	Bangalore
March	10	60	20	10
April	35	95	30	40
May	50	130	100	80

From this table, we have that total number of tests (Urban + Rural) in Ahmedabad in

March =  $10 + 20 = 30$

April =  $35 + 30 = 65$

May =  $50 + 100 = 150$

From value of C in March, we have

Urban test in Ahmedabad = 20 (+ve and -ve both)

Rural test in Ahmedabad = 10

From value of C in April, we have

Urban test in Ahmedabad = 50

Rural test in Ahmedabad = 15

From value of C in May, we have

Urban test in Ahmedabad = 100 (+ve and -ve both)

Rural test in Ahmedabad = 50

Now, we have last information that in a given month, number of tests found negative in rural area is equal to the number of tests found negative in urban area.

Consider March of Ahmedabad.

Let the number of Rural test found positive/negative =  $R^+/R^-$ ; and Urban test found positive =  $U^+/U^-$

So, we have been given that  $R^- = U^-$

We have from the calculations above that (March in Ahmedabad)

$$U^+ + U^- = 20 \text{ -----(1)}$$

$$R^+ + R^- = 10 \text{ -----(2)}$$

From table I, we have

$$R^- + U^- = 20 \text{ -----(3)}$$

$$R^+ + U^+ = 10 \text{ -----(4)}$$

But since  $R^- = U^- = Y$  (say), we have from (3)

$$R^- = U^- = 10$$

Putting value of  $R^- = U^- = 10$  in (1), (2) and (4), we get

$$U^+ = 10$$

$$R^+ = 0$$

Similarly we find for each month and both the cities.

The following table has all the values filled in.

(Table-III)



Month	Ahmedabad				Bangalore			
	Urban		Rural		Urban		Rural	
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
March	10	10	0	10	45	5	15	5
April	35	15	0	15	50	20	45	20
May	50	50	0	50	80	40	50	40

For the given question,

From table-III,

We can notice that the Rural area of Ahmedabad in May has zero case.

Therefore, the Rural area of Ahmedabad in May has no positive case.

#### Q18 Text Solution:

From the given question,

Using the given table chart in the question, we find the following table.

(Table-I)

Month	Positive (+ve)	Negative (-ve)
March	70	30
April	130	70
May	180	180

Using the values of A and B from column chart, we have the following information.

(Table-II)

Month	Positive (+ve)		Negative (-ve)	
	Ahmedabad	Bangalore	Ahmedabad	Bangalore
March	10	60	20	10
April	35	95	30	40
May	50	130	100	80

From this table, we have that total number of tests (Urban + Rural) in Ahmedabad in

March =  $10 + 20 = 30$

April =  $35 + 30 = 65$

May =  $50 + 100 = 150$

From value of C in March, we have

Urban test in Ahmedabad = 20 (+ve and -ve both)

Rural test in Ahmedabad = 10

From value of C in April, we have

Urban test in Ahmedabad = 50

Rural test in Ahmedabad = 15

From value of C in May, we have

Urban test in Ahmedabad = 100 (+ve and -ve both)

Rural test in Ahmedabad = 50

Now, we have last information that in a given month, number of tests found negative in rural area is equal to the number of tests found negative in urban area.

Consider March of Ahmedabad.

Let the number of Rural test found positive/negative =  $R^+/R^-$ ; and Urban test found positive =  $U^+/U^-$

So, we have been given that  $R^- = U^-$

We have from the calculations above that

(March in Ahmedabad)

$$U^+ + U^- = 20 \text{ -----(1)}$$

$$R^+ + R^- = 10 \text{ -----(2)}$$

From table I, we have

$$R^- + U^- = 20 \text{ -----(3)}$$

$$R^+ + U^+ = 10 \text{ -----(4)}$$

But since  $R^- = U^- = Y$  (say), we have from (3)

$$R^- = U^- = 10$$

Putting value of  $R^- = U^- = 10$  in (1), (2) and (4), we get

$$U^+ = 10$$

$$R^+ = 0$$

Similarly we find for each month and both the cities.

The following table has all the values filled in.

(Table-III)

Month	Ahmedabad				Bangalore			
	Urban		Rural		Urban		Rural	
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
March	10	10	0	10	45	5	15	5
April	35	15	0	15	50	20	45	20
May	50	50	0	50	80	40	50	40

For the given question,

From table-III,





The number of positive cases in Urban Bangalore

$$= 45 + 50 + 80 = 175$$

The number of positive cases in Rural Bangalore

$$= 15 + 45 + 50 = 110$$

$$\text{Difference} = 175 - 110 = 65$$

Therefore, the difference between the total number of positive cases in Urban and Rural areas of Bangalore in the three months together is 65.

### Q19 Text Solution:

From the given question,

Using the given table chart in the question, we find the following table.

(Table-I)

Month	Positive (+ve)	Negative (-ve)
March	70	30
April	130	70
May	180	180

Using the values of A and B from column chart, we have the following information.

(Table-II)

Month	Positive (+ve)		Negative (-ve)	
	Ahmedabad	Bangalore	Ahmedabad	Bangalore
March	10	60	20	10
April	35	95	30	40
May	50	130	100	80

From this table, we have that total number of tests (Urban + Rural) in Ahmedabad in

$$\text{March} = 10 + 20 = 30$$

$$\text{April} = 35 + 30 = 65$$

$$\text{May} = 50 + 100 = 150$$

From value of C in March, we have

Urban test in Ahmedabad = 20 (+ve and -ve both)

Rural test in Ahmedabad = 10

From value of C in April, we have

Urban test in Ahmedabad = 50

Rural test in Ahmedabad = 15

From value of C in May, we have

Urban test in Ahmedabad = 100 (+ve and -ve both)

Rural test in Ahmedabad = 50

Now, we have last information that in a given month, number of tests found negative in rural area is equal to the number of tests found negative in urban area.

Consider March of Ahmedabad.

Let the number of Rural test found positive/negative =  $R^+/R^-$ ; and Urban test found positive =  $U^+/U^-$

So, we have been given that  $R^- = U^-$

We have from the calculations above that (March in Ahmedabad)

$$U^+ + U^- = 20 \text{ -----(1)}$$

$$R^+ + R^- = 10 \text{ -----(2)}$$

From table I, we have

$$R^- + U^- = 20 \text{ -----(3)}$$

$$R^+ + U^+ = 10 \text{ -----(4)}$$

But since  $R^- = U^- = Y$  (say), we have from (3)

$$R^- = U^- = 10$$

Putting value of  $R^- = U^- = 10$  in (1), (2) and (4), we get

$$U^+ = 10$$

$$R^+ = 0$$

Similarly we find for each month and both the cities.

The following table has all the values filled in.

(Table-III)

Month	Ahmedabad				Bangalore			
	Urban		Rural		Urban		Rural	
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
March	10	10	0	10	45	5	15	5
April	35	15	0	15	50	20	45	20
May	50	50	0	50	80	40	50	40

For the given question,

From table-II,



Total number of negative cases in the three months

$$= 20 + 30 + 100 = 150$$

$$\text{Required average} = \frac{150}{3} = 50$$

Therefore, the average number of negative cases in the three months in Ahmedabad is 50.

## Q20 Text Solution:

Common Solution:

Let the cost price of items A, B, C, and D is '100a', '100b', '100c', and '100d' respectively.

Marked price of item A = 125% of 120% of 100a = 150a

Marked price of item B = 110% of 130% of 100b = 143b

Marked price of item C = 115% of 120% of 100c = 138c

Marked price of item D = 120% of 140% of 100d = 168d

Discount amount on item A = 25% of 200 = ₹50

Discount amount on item B = 14.5% of 200 = ₹29

Discount amount on item C = 22.5% of 200 = ₹45

Discount amount on item D = 21% of 200 = ₹42

Discount amount on item E = 17% of 200 = ₹34

Selling price of item A = 100a + 50 = 150a - 50  
50a = 100

$$a = 2$$

Selling price of item B = 100b + 100 = 143b - 29  
43b = 129

$$b = 3$$

Selling price of item C = 100c + 50 = 138c - 45  
38c = 95

$$c = 2.5$$

Selling price of item D = 100d + 60 = 168d - 42  
68d = 102

$$d = 1.5$$

Items	Cost Price (in ₹)	Marked Price (in ₹)	Selling Price (in ₹)
A	200	300	250
B	300	429	400
C	250	345	300
D	150	252	210

New marked price of item A = (100 + 20 + 25)% of 200 = 145% of 200 = ₹290

New amount of discount = 290 - 250 = ₹40

Original amount of discount = 300 - 250 = ₹50

Required percent =  $\frac{40}{50} \times 100 = 80\%$  less

## Q21 Text Solution:

Common Solution:

Let the cost price of items A, B, C, and D is '100a', '100b', '100c', and '100d' respectively.

Marked price of item A = 125% of 120% of 100a = 150a

Marked price of item B = 110% of 130% of 100b = 143b

Marked price of item C = 115% of 120% of 100c = 138c

Marked price of item D = 120% of 140% of 100d = 168d

Discount amount on item A = 25% of 200 = ₹50

Discount amount on item B = 14.5% of 200 = ₹29

Discount amount on item C = 22.5% of 200 = ₹45

Discount amount on item D = 21% of 200 = ₹42

Discount amount on item E = 17% of 200 = ₹34

Selling price of item A = 100a + 50 = 150a - 50  
50a = 100

$$a = 2$$

Selling price of item B = 100b + 100 = 143b - 29  
43b = 129

$$b = 3$$

Selling price of item C = 100c + 50 = 138c - 45  
38c = 95

$$c = 2.5$$



Selling price of item D =  $100d + 60 = 168d - 42$

$68d = 102$

$d = 1.5$

Items	Cost Price (in ₹)	Marked Price (in ₹)	Selling Price (in ₹)
A	200	300	250
B	300	429	400
C	250	345	300
D	150	252	210

New selling price item D =  $210 - 24 = ₹186$

Required discount percent =  $\frac{186-150}{150} \times 100 = 24\%$

## Q22 Text Solution:

Common Solution:

Let the cost price of items A, B, C, and D is '100a', '100b', '100c', and '100d' respectively.

Marked price of item A = 125% of 120% of 100a = 150a

Marked price of item B = 110% of 130% of 100b = 143b

Marked price of item C = 115% of 120% of 100c = 138c

Marked price of item D = 120% of 140% of 100d = 168d

Discount amount on item A = 25% of 200 = ₹50

Discount amount on item B = 14.5% of 200 = ₹29

Discount amount on item C = 22.5% of 200 = ₹45

Discount amount on item D = 21% of 200 = ₹42

Discount amount on item E = 17% of 200 = ₹34

Selling price of item A =  $100a + 50 = 150a - 50$   
 $50a = 100$

$a = 2$

Selling price of item B =  $100b + 100 = 143b - 29$   
 $43b = 129$

$b = 3$

Selling price of item C =  $100c + 50 = 138c - 45$

$38c = 95$

$c = 2.5$

Selling price of item D =  $100d + 60 = 168d - 42$

$68d = 102$

$d = 1.5$

Items	Cost Price (in ₹)	Marked Price (in ₹)	Selling Price (in ₹)
A	200	300	250
B	300	429	400
C	250	345	300
D	150	252	210

New cost price of item C =  $250 + 50 = ₹300$

Original profit percent =  $\frac{300-250}{250} \times 100 = 20\%$

New selling price in order to earn the same profit percent = 120% of 300 = ₹360

Hence, required difference =  $360 - 300 = ₹60$

## Q23 Text Solution:

Common Solution:

Let the cost price of items A, B, C, and D is '100a', '100b', '100c', and '100d' respectively.

Marked price of item A = 125% of 120% of 100a = 150a

Marked price of item B = 110% of 130% of 100b = 143b

Marked price of item C = 115% of 120% of 100c = 138c

Marked price of item D = 120% of 140% of 100d = 168d

Discount amount on item A = 25% of 200 = ₹50

Discount amount on item B = 14.5% of 200 = ₹29

Discount amount on item C = 22.5% of 200 = ₹45

Discount amount on item D = 21% of 200 = ₹42

Discount amount on item E = 17% of 200 = ₹34

Selling price of item A =  $100a + 50 = 150a - 50$   
 $50a = 100$

$a = 2$



Selling price of item B =  $100b + 100 = 143b - 29$

$$43b = 129$$

$$b = 3$$

Selling price of item C =  $100c + 50 = 138c - 45$

$$38c = 95$$

$$c = 2.5$$

Selling price of item D =  $100d + 60 = 168d - 42$

$$68d = 102$$

$$d = 1.5$$

Items	Cost Price (in ₹)	Marked Price (in ₹)	Selling Price (in ₹)
A	200	300	250
B	300	429	400
C	250	345	300
D	150	252	210

Selling price of item E =  $250 \times \frac{2}{1} = ₹500$

Total selling price of items A and E together =  $250 + 500 = ₹750$

Total cost price of items A and E together =  $750 \times \frac{100}{150} = ₹500$

Cost price of item E =  $500 - 200 = ₹300$

#### Q24 Text Solution:

Common Solution:

Let the cost price of items A, B, C, and D is '100a', '100b', '100c', and '100d' respectively.

Marked price of item A = 125% of 120% of  $100a = 150a$

Marked price of item B = 110% of 130% of  $100b = 143b$

Marked price of item C = 115% of 120% of  $100c = 138c$

Marked price of item D = 120% of 140% of  $100d = 168d$

Discount amount on item A = 25% of 200 = ₹50

Discount amount on item B = 14.5% of 200 = ₹29

Discount amount on item C = 22.5% of 200 = ₹45

Discount amount on item D = 21% of 200 = ₹42

Discount amount on item E = 17% of 200 = ₹34

Selling price of item A =  $100a + 50 = 150a - 50$

$$50a = 100$$

Selling price of item B =  $100b + 100 = 143b - 29$

$$43b = 129$$

$$b = 3$$

Selling price of item C =  $100c + 50 = 138c - 45$

$$38c = 95$$

$$c = 2.5$$

Selling price of item D =  $100d + 60 = 168d - 42$

$$68d = 102$$

$$d = 1.5$$

Items	Cost Price (in ₹)	Marked Price (in ₹)	Selling Price (in ₹)
A	200	300	250
B	300	429	400
C	250	345	300
D	150	252	210

Total marked price of items B and C together =  $429 + 345 = ₹774$

Total selling price of items B and C together =  $400 + 300 = ₹700$

Required discount percent =  $\frac{774-700}{774} \times 100 = 9.6\%$

#### Q25 Text Solution:

Common Solution:

Let PX = 'm', PY = 'n'

$$XY = m^2 + n^2$$

According to the question:

$$(m + n) - (m^2 + n^2) = 30$$

Let the speed of persons A, B, C, D, and E is 'a', 'b', 'c', 'd', and 'e' respectively.

According to the question:

$$= a \times \frac{150}{60} = 2.5a \dots\dots\dots (2)$$

$$(m + n) = a \times \frac{150 + 36}{60} = \frac{186a}{60} = 3.1a \dots\dots\dots (3)$$



From (1), (2), and (3):

$$3.1a - 2.5a = 30$$

$$a = 50$$

Now,

$$= 125$$

$$(m + n) = 155$$

We know that:

$$(m + n)^2 + (m - n)^2 = 2(m^2 + n^2)$$

$$155^2 + (m - n)^2 = 2 \times 125^2$$

$$24025 + (m - n)^2 = 31250$$

$$(m - n)^2 = 7225$$

$$m - n = 85$$

After solving:

$$m = 120 \text{ and } n = 35$$

Distance between cities X and Y = 125 km

Distance between cities X and P = m = 120 km

Distance between cities Y and P = n = 35 km

Speed of A = a = 50 km/h

$$\text{Speed of B} = 125 \times \frac{60}{250} = 30 \text{ km/h}$$

$$\text{Speed of C} = 125 \times \frac{60}{100} = 75 \text{ km/h}$$

$$\text{Speed of D} = 125 \times \frac{60}{75} = 100 \text{ km/h}$$

$$\text{Speed of E} = 125 \times \frac{60}{300} = 25 \text{ km/h}$$

Time taken to go from city X to city Y via city P = 150 min

$$\text{Increased speed} = \frac{155}{150} \times 60 = 62 \text{ km/h}$$

$$\text{Required percent increment} = \frac{62 - 50}{50} \times 100 = 24\%$$

## Q26 Text Solution:

Common Solution:

Let PX = 'm', PY = 'n'

$$XY = m^2 + n^2$$

According to the question:

$$(m + n) - (m^2 + n^2) = 30 \dots\dots\dots(1)$$

Let the speed of persons A, B, C, D, and E is 'a', 'b', 'c', 'd', and 'e' respectively.

According to the question:

$$= a \times \frac{150}{60} = 2.5a \dots\dots\dots(2)$$

$$(m + n) = a \times \frac{150 + 36}{60} = \frac{186a}{60} = 3.1a \dots\dots$$

$$\dots\dots\dots(3)$$

From (1), (2), and (3):

$$3.1a - 2.5a = 30$$

$$a = 50$$

Now,

$$= 125$$

$$(m + n) = 155$$

We know that:

$$(m + n)^2 + (m - n)^2 = 2(m^2 + n^2)$$

$$155^2 + (m - n)^2 = 2 \times 125^2$$

$$24025 + (m - n)^2 = 31250$$

$$(m - n)^2 = 7225$$

$$m - n = 85$$

After solving:

$$m = 120 \text{ and } n = 35$$

Distance between cities X and Y = 125 km

Distance between cities X and P = m = 120 km

Distance between cities Y and P = n = 35 km

Speed of A = a = 50 km/h

$$\text{Speed of B} = 125 \times \frac{60}{250} = 30 \text{ km/h}$$

$$\text{Speed of C} = 125 \times \frac{60}{100} = 75 \text{ km/h}$$

$$\text{Speed of D} = 125 \times \frac{60}{75} = 100 \text{ km/h}$$

$$\text{Speed of E} = 125 \times \frac{60}{300} = 25 \text{ km/h}$$

Distance between cities X and Y directly = 125 km

Distance between cities X and Y via city P = 155 km

Required ratio = 125: 155

$$= 25: 31$$

## Q27 Text Solution:

Common Solution:

Let PX = 'm', PY = 'n'

$$XY =$$

According to the question:

$$(m + n) - (m^2 + n^2) = 30 \dots\dots\dots(1)$$

Let the speed of persons A, B, C, D, and E is 'a', 'b', 'c', 'd', and 'e' respectively.



According to the question:

$$= a \times \frac{150}{60} = 2.5a \dots\dots\dots (2)$$

$$(m + n) = a \times \frac{150 + 36}{60} = \frac{186a}{60} = 3.1a \dots\dots\dots (3)$$

From (1), (2), and (3):

$$3.1a - 2.5a = 30$$

$$a = 50$$

Now,

$$= 125$$

$$(m + n) = 155$$

We know that:

$$(m + n)^2 + (m - n)^2 = 2(m^2 + n^2)$$

$$155^2 + (m - n)^2 = 2 \times 125^2$$

$$24025 + (m - n)^2 = 31250$$

$$(m - n)^2 = 7225$$

$$m - n = 85$$

After solving:

$$m = 120 \text{ and } n = 35$$

Distance between cities X and Y = 125 km

Distance between cities X and P = m = 120 km

Distance between cities Y and P = n = 35 km

Speed of A = a = 50 km/h

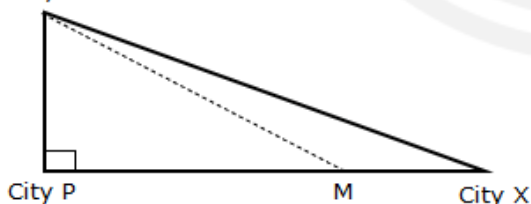
$$\text{Speed of B} = 125 \times \frac{60}{250} = 30 \text{ km/h}$$

$$\text{Speed of C} = 125 \times \frac{60}{100} = 75 \text{ km/h}$$

$$\text{Speed of D} = 125 \times \frac{60}{75} = 100 \text{ km/h}$$

$$\text{Speed of E} = 125 \times \frac{60}{300} = 25 \text{ km/h}$$

City Y



Let he reach point M after traveling for 'D' km.

Total distance traveled = MX + MY =

$$(4 + \frac{14}{60}) \times 30$$

$$D + MY = 127$$

$$MY = (127 - D)$$

$$PM = (120 - D) \text{ km}$$

$$PY = 35 \text{ km}$$

$$(127 - D)^2 = PM^2 + PY^2$$

$$(127 - D)^2 = (120 - D)^2 + 35^2$$

$$16129 + D^2 - 254D = 14400 + D^2 - 240D + 1225$$

$$14D = 504$$

$$D = 36$$

Value of 'D' = 36

#### Q28 Text Solution:

Common Solution:

Let PX = 'm', PY = 'n'

$$XY = m^2 + n^2$$

According to the question:

$$(m + n) - (m^2 + n^2) = 30 \dots\dots\dots (1)$$

Let speed of person A, B, C, D, and E is 'a', 'b', 'c', 'd', and 'e' respectively.

According to the question:

$$= a \times \frac{150}{60} = 2.5a \dots\dots\dots (2)$$

$$(m + n) = a \times \frac{150 + 36}{60} = \frac{186a}{60} = 3.1a \dots\dots\dots (3)$$

From (1), (2), and (3):

$$3.1a - 2.5a = 30$$

$$a = 50$$

Now,

$$= 125$$

$$(m + n) = 155$$

We know that:

$$(m + n)^2 + (m - n)^2 = 2(m^2 + n^2)$$

$$155^2 + (m - n)^2 = 2 \times 125^2$$

$$24025 + (m - n)^2 = 31250$$

$$(m - n)^2 = 7225$$

$$m - n = 85$$

After solving:

$$m = 120 \text{ and } n = 35$$

Distance between cities X and Y = 125 km

Distance between cities X and P = m = 120 km

Distance between cities Y and P = n = 35 km

Speed of A = a = 50 km/h

$$\text{Speed of B} = 125 \times \frac{60}{250} = 30 \text{ km/h}$$

$$\text{Speed of C} = 125 \times \frac{60}{100} = 75 \text{ km/h}$$





$$\text{Speed of D} = 125 \times \frac{60}{75} = 100 \text{ km/h}$$

$$\text{Speed of E} = 125 \times \frac{60}{300} = 25 \text{ km/h}$$

Time taken by person A to travel between cities

$$\text{X and Y via city P} = \frac{155}{50} = 3 \text{ hours } 6 \text{ min}$$

Time taken by person C to travel between cities

X and Y via city P =

$$\frac{155}{75} = 2 \text{ hours } 4 \text{ min}$$

Required difference = 3 hours 6 min - 2 hours 4 min

= 1 hour 2 min



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