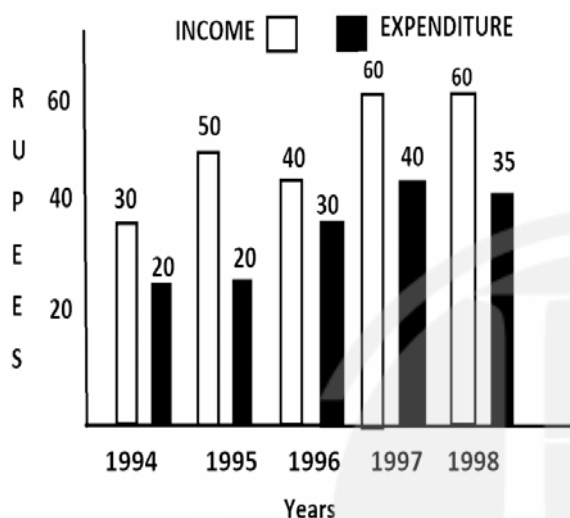# Quantitative Aptitude

Bar Graph Based Data Interpretations

Level-1

Q1 Study the following graph carefully and answer the question given below it:

Income and expenditure over the year
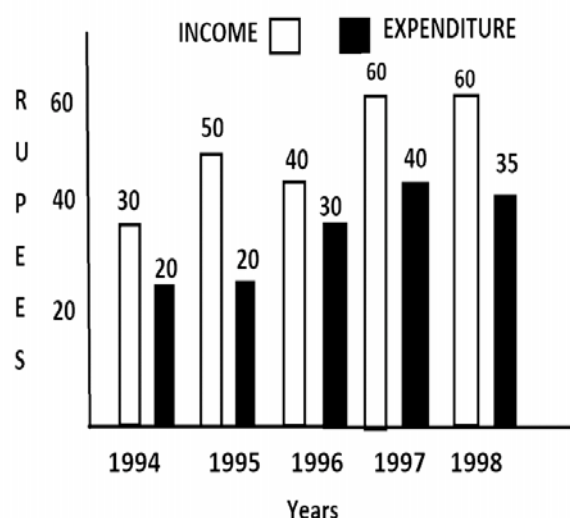

The income in 1996 was equal to the expenditure of which of the following years?

(A) 1994   (B) 1995

(C) 1996   (D) 1997

(E) 1998

Q2 Study the following graph carefully and answer the question given below it:
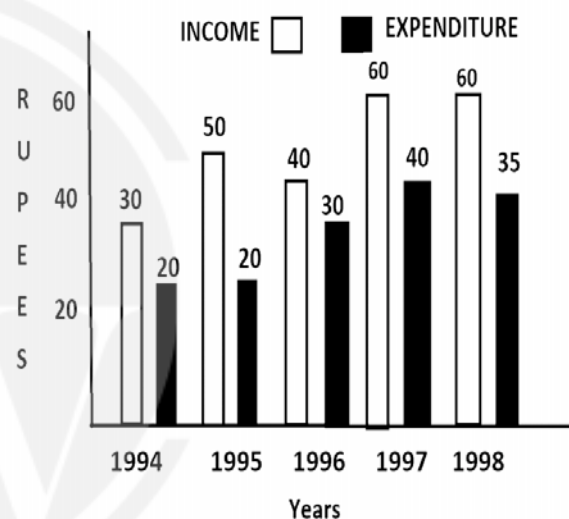
Income and expenditure over the year

In which of the following the profit was maximum?

(A) 1994   (B) 1995

(C) 1996   (D) 1998

(E) 1997

Q3 Study the following graph carefully and answer the question given below it:

Income and expenditure over the year
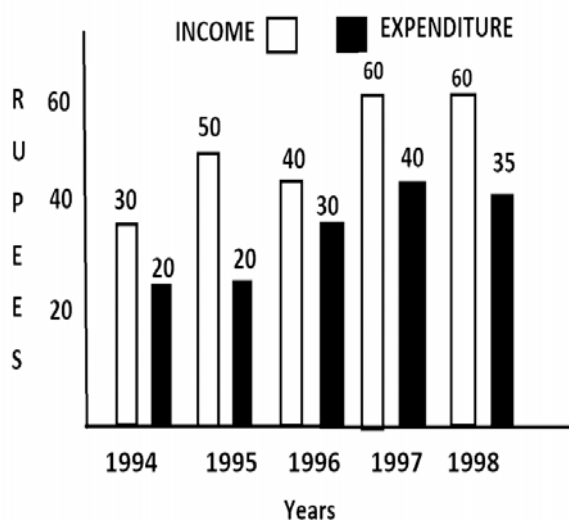

What was the difference in profit between 1995 and 1996?

(A) 10 lakhs   (B) No profit

(C) 15 lakhs   (D) 5 lakhs

(E) 20 lakhs

Q4 Study the following graph carefully and answer the question given below it:

Income and expenditure over the year
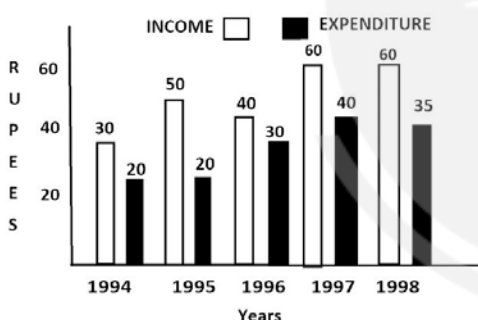
In the case of how many years was the income more than the average income of the given years?

(A) One   (B) Two

(C) Three   (D) Four

(E) Five

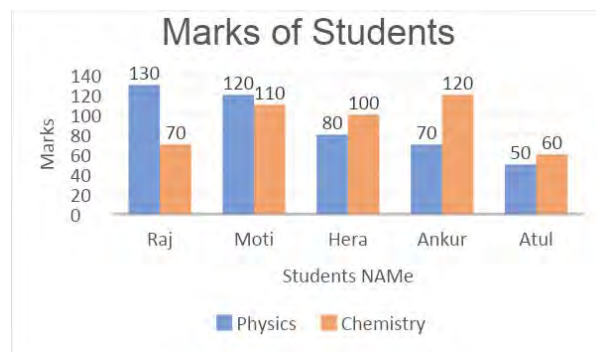**Q5 Study the following graph carefully and answer the question given below it:**

Income and expenditure over the year

What was the percentage increase in expenditure from 1996 to 1997?

(A) 10   (B) 66

(C) 33   (D) 20

(E) None of these

Q6 Directions: Study the following Bar-Graph and answer the questions.

Marks obtained by Ankur in Chemistry is what percent of the total marks obtained by all the students in Chemistry ?

(A) 26.08   (B) 28.5

(C) 35   (D) 31.5

(E) 22

Q7 Directions: Study the following Bar-Graph and answer the questions.
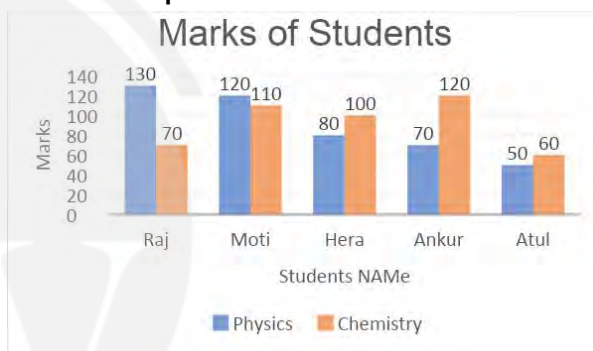
What is the respective ratio between the total marks obtained by Hera & Ankur together in Chemistry to the total marks obtained by Raj & Moti together in Physics.

(A) 23:52   (B) 23:21

(C) 17:19   (D) 17:23

(E) None of these

Q8 Directions: Study the following Bar-Graph and answer the questions.

Total marks obtained by Atul in both subjects together is more than the marks obtained by

(A) Hera in Chemistry

(B) Moti in Physics

(C) Ankur in Chemistry

(D) Raj in Physics

(E) Moti in both the subjects together

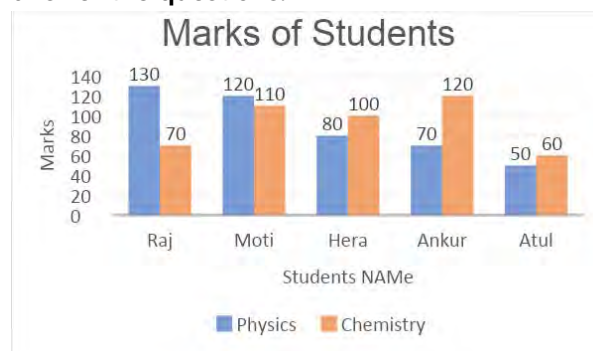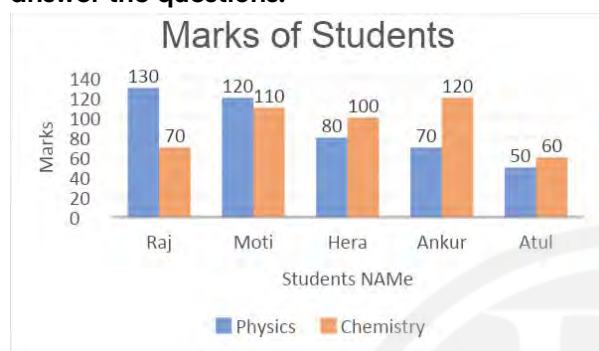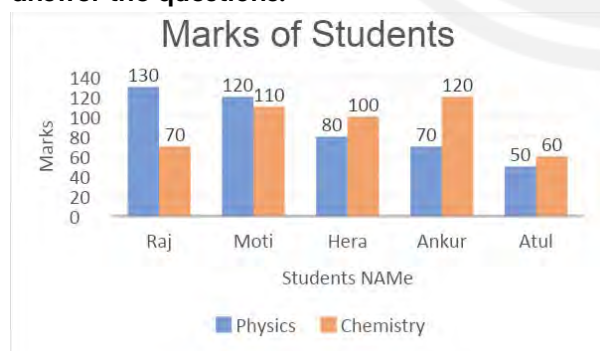**Q9** **Directions: Study the following Bar-Graph and answer the questions.**

Marks of Students

If the marks obtained by Atul in physics were increased by 14 % of the original marks, what would be his new approximate percentage in Physics if the maximum marks in Physics were 140.

(A) 57%   (B) 32%

(C) 38%   (D) 48%

(E) 41%

Q10 **Directions: Study the following Bar-Graph and answer the questions.**

Marks of Students

What is the respective ratio between the total marks obtained by Raj in Physics and Chemistry together to the total marks obtained by Atul in Physics and Chemistry together ?

(A) 3:2   (B) 4:3

(C) 5:3   (D) 20:11

(E) None of these

Q11 **Directions: Study the following chart data carefully and answer the questions accordingly.**

The following pie-charts show the distribution of students of graduate and post-graduate levels in seven different institutes in a town.

Distribution of students at graduate and post-graduate levels in seven institutes:
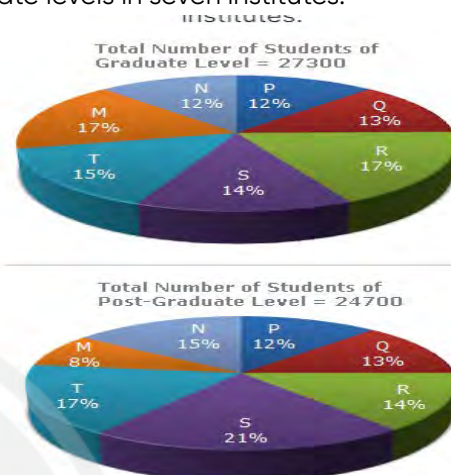
Ratio of graduate and postgraduate students studying from the institute Q?

(A) 3:5   (B) 3549:3211

(C) 3456:2435   (D) 5:3

(E) None of these

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

Points scored

The percentage increase in imports between 1995-96 and 1999-2000 was

(A) 25% (B) 125%

(C) 100% (D) 75%

(E) 50%

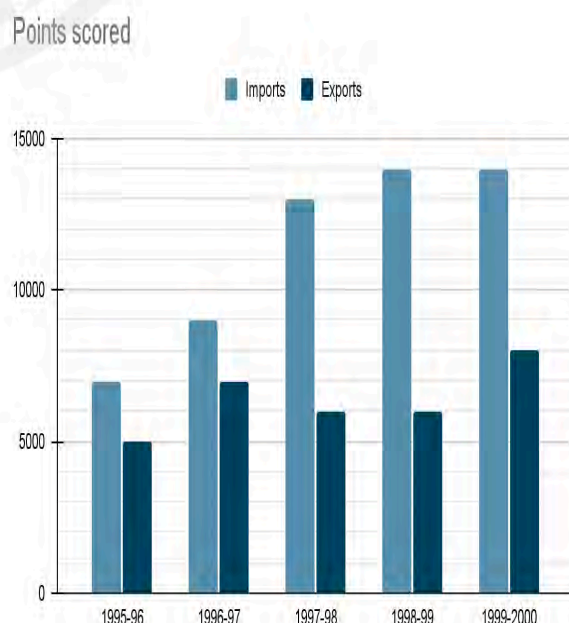**Q13** Directions: Study the following data carefully and answer the questions accordingly.

Points scored
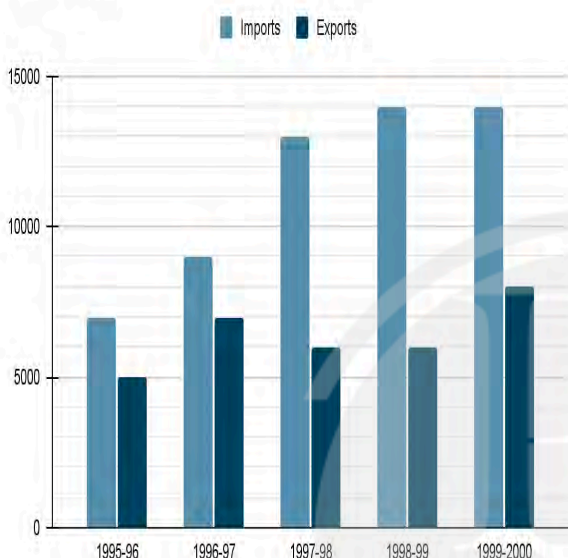
If oil imports constituted 20% of the total imports in 1997-98, then what percentage of the trade gap was pie chart due to oil? (assuming that no oil is exported)

(A) 30% (B) 40%

(C) 85% (D) 25%

(E) 50%

Q14 The given bar graph shows the number of residents residing in 4 societies in 2012 , 2022 . Read the data carefully and answer the questions carefully .
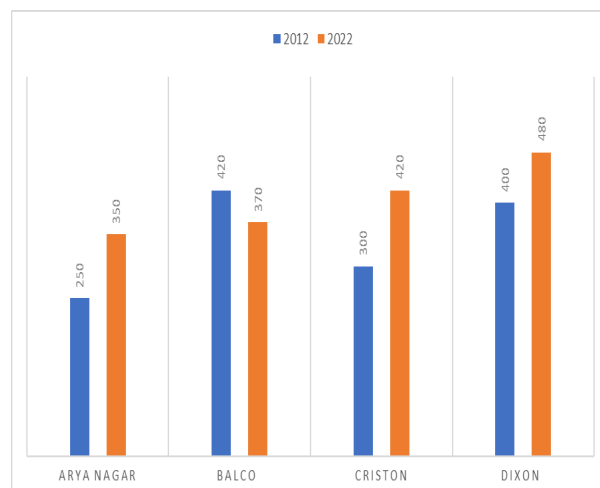
Residents residing in society Balco in 2012 are what percent more/less than average of residents residing in society Dixon in 2012 and 2022.

(A) $6\frac{6}{11}\%$

(B) $5\frac{6}{11}\%$

(C) $4\frac{6}{11}\%$

(D) $3\frac{6}{11}\%$

(E) None of these

Q15 The Given bar graph shows the number of residents residing in 4 societies in 2012 , 2022 . Read the data carefully and answer the questions carefully .

What is the difference between the number of residents residing in Arya nagar and Balco in 2022 together and that of Criston and Dixon together in 2012.

(A) 25 (B) 15

(C) 20 (D) 35

(E) None of these

Q16 The Given bar graph shows the number of residents residing in 4 societies in 2012 , 2022 . Read the data carefully and answer the questions carefully .
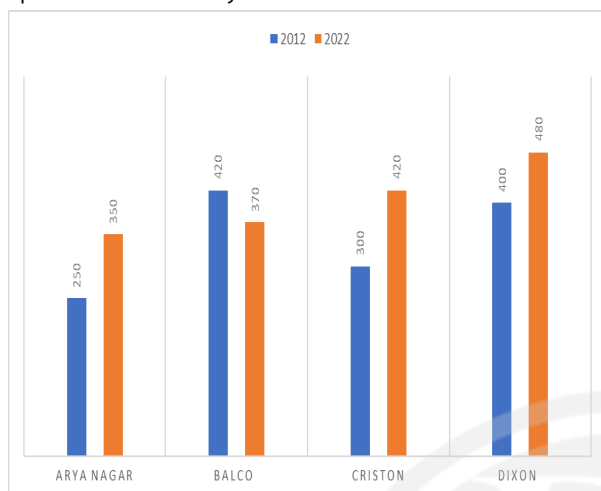
What is the ratio of all residents in all societies in 2012 to that of in 2022.

(A) 21:23   (B) 11:13

(C) 137 : 162   (D) 145: 181

(E) None of these

Q17 The Given bar graph shows the number of residents residing in 4 societies in 2012 , 2022 . Read the data carefully and answer the questions carefully .
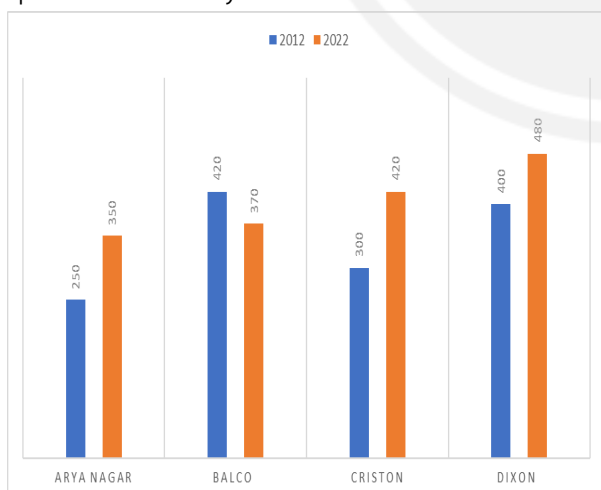
Which society shows the maximum percentage increase in the number of residents from 2012 to 2022.

(A) Both C and D   (B) Both A and D

(C) Both A and C   (D) Both B and C

(E) None of these

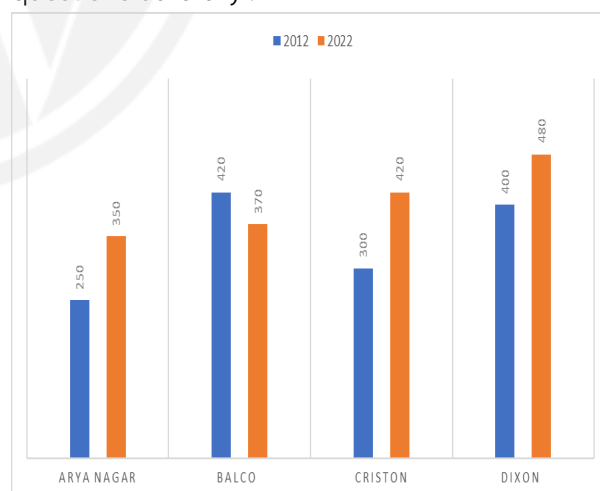**Q18** The bar graph shows the number of residents residing in 4 societies in 2012 , 2022 . Read the data carefully and answer the questions carefully .
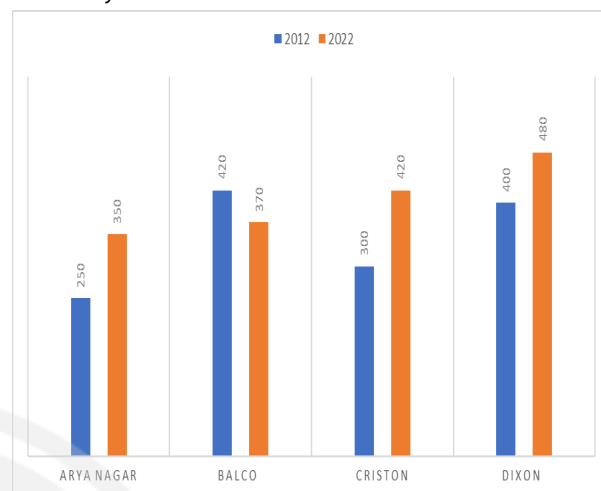
What is average of residents residing in society Arya nagar in 2012 , Balco in 2022 , Criston in 2022 and Dixon in 2012 .

(A) 480   (B) 240

(C) 360   (D) 300

(E) None of these

Q19 **Directions: Following bar graph shows radius and height (in cm) of five different cylinders.**
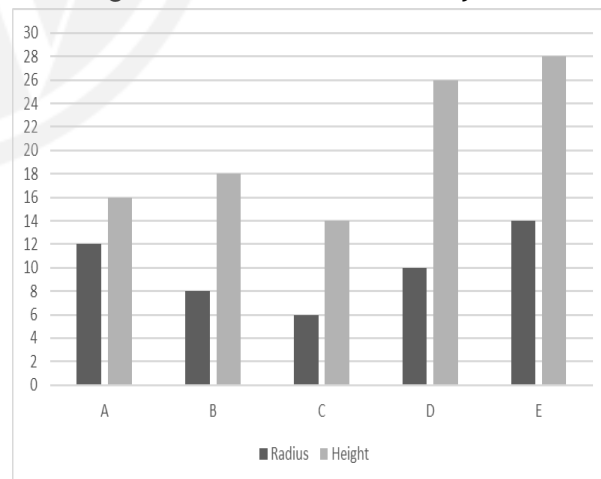
What is the ratio of curved surface area of cylinder B to that of cylinder D?

(A) 7 : 8   (B) 9 : 5

(C) 6 : 5   (D) 15 : 9

(E) None of these

Q20

Directions: The following bar graph shows the radius and height (in cm) of five different cylinders.
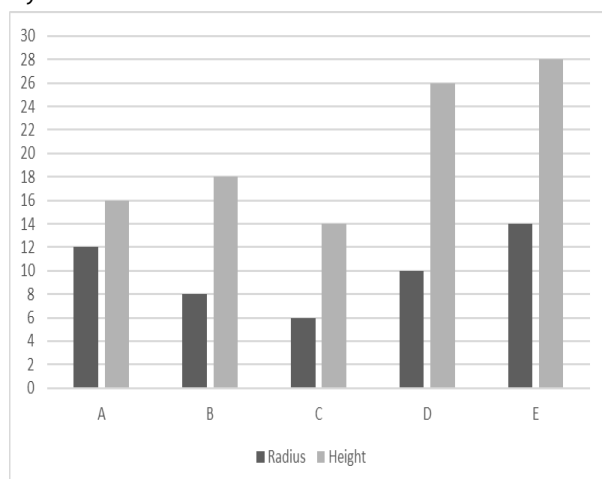
Radius ■ Height

What is the average of volume of the cylinders A, B, and C in cm^3 ?

(A) $\frac{87100}{7}$

(B) 78143

(C) $\frac{87100}{21}$

(D) $\frac{64320}{21}$

(E) None of these

Q21 **Directions: Following bar graph shows radius and height (in cm) of five different cylinders.**

■ Radius ■ Height
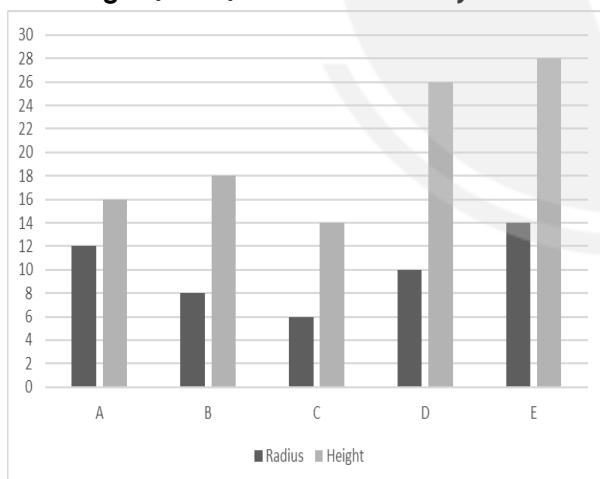
If cylinder D is 45% filled with oil and cylinder E is 75% filled with oil, then what is the difference between empty volumes of both cylinders in (cm^3)?

(A) 182.28   (B) 203.34

(C) 167.66   (D) 302.73

(E) None of these

Q22 **Directions: Following bar graph shows radius and height (in cm) of five different cylinders.**
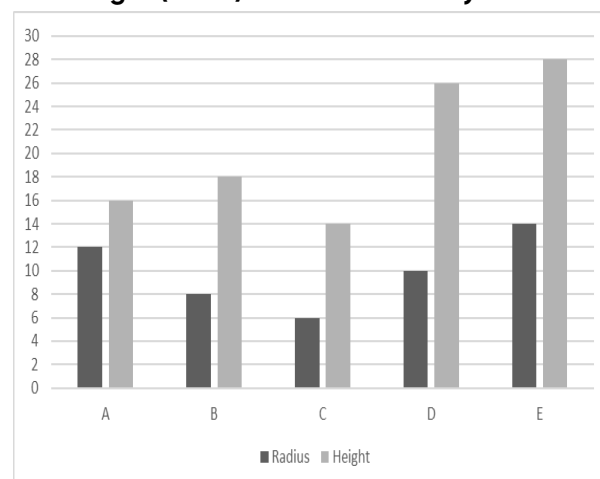
■ Radius ■ Height

Difference between diameter and height of cylinder B is what percent more or less than difference between diameter and height of cylinder A?

(A) 62%   (B) 55.2%

(C) 48.6%   (D) 75%

(E) None of these

Q23 **Directions: Following bar graph shows radius and height (in cm) of five different cylinders.**

■ Radius ■ Height
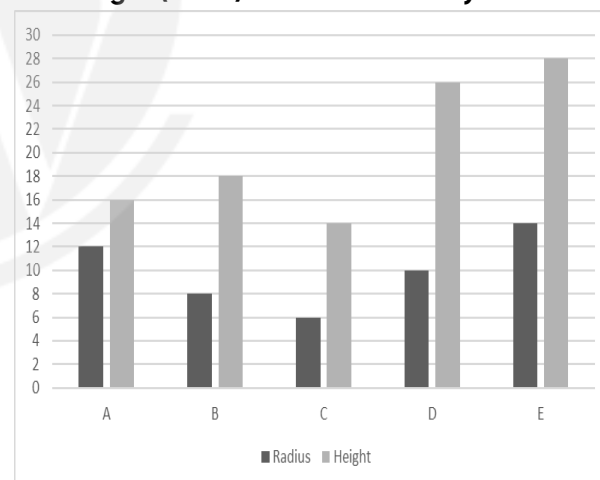
If cylinders A and B are being filled totally with cubes of size 3 cm, then what is the approximate difference in numbers of cubes that cylinder A and B can contain?

(A) 152   (B) 289

(C) 167   (D) 186

(E) None of these

Q24

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

The following Bar graph shows the number of sales of shoes in different years by A company from various cities .

What is the ratio of shoes sold in Pune in 2019 and 2021 to the total number of shoes sold in 2018?

(A) 14:65

(B) 11:30

(C) 12:65

(D) 17:60

(E) 11:7

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

The following Bar graph shows the number of sales of shoes in different years by A company from various cities .

Find the ratio of the number of shoe sales in 2019 from Kolkata and Odisha cities together to the number of shoes sales in 2021 from Pune, Rachi and Chennai Cities together?

(A) 9:16

(B) 12:13

(C) 8:11

(D) 7:11

(E) None of these

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

The following Bar graph shows the number of sales of shoes in different years by A company from various cities .

Find the difference between the average number of shoes sales which sold in 2019 sessions from all the cities together and the average of the total number of shoes Sales from the rachi city?

(A) 75

(B) 122

(C) 65

(D) 72

(E) 60

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

The following Bar graph shows the number of sales of shoes in different years by A company from various cities .

Android App | iOS App | PW Website

The total number of shoes sold from pune city is what percentage is more or less than that of the number of shoes sales from Chennai ?

(A) 15%less   (B) 25%more

(C) 10%less   (D) 20% more

(E) None of these

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

The following Bar graph shows the number of sales of shoes in different years by A company from various cities .

sales of shoes in various city
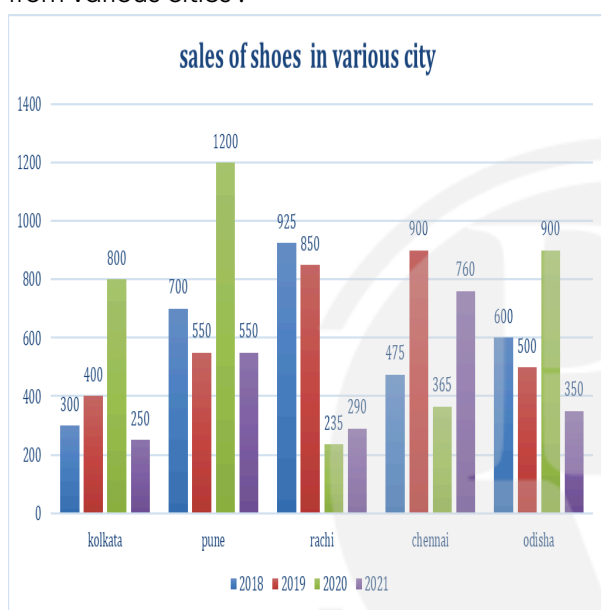
In which year , the number of shoe sales is the 2nd lowest?

(A) 2020

(B) 2019

(C) 2018

(D) Both 2018 and 2021

(E) 2021

Q29 **Directions: Study the following data carefully and answer the questions accordingly.**

The given Bar graph shows the number of three different rupee notes i.e. 500, 200 and 100 with five different shopkeepers (A, B, C, D and E) on Sunday.
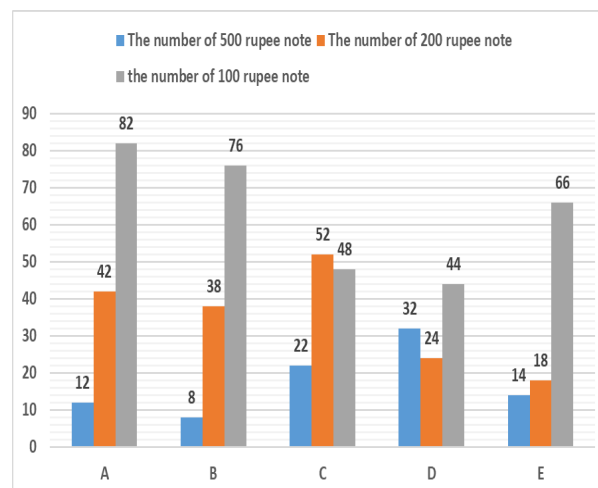
The total amount with shopkeeper D from 500 rupee notes is how much more/less than the total amount with shopkeeper B from 100 rupee notes?

(A) Rs.4200   (B) Rs.4200

(C) Rs.9200   (D) Rs.8400

(E) None of these

Q30 **Directions: Study the following data carefully and answer the questions accordingly.**

The given Bar graph shows the number of three different rupee notes i.e. 500, 200 and 100 with five different shopkeepers (A, B, C, D and E) on Sunday.
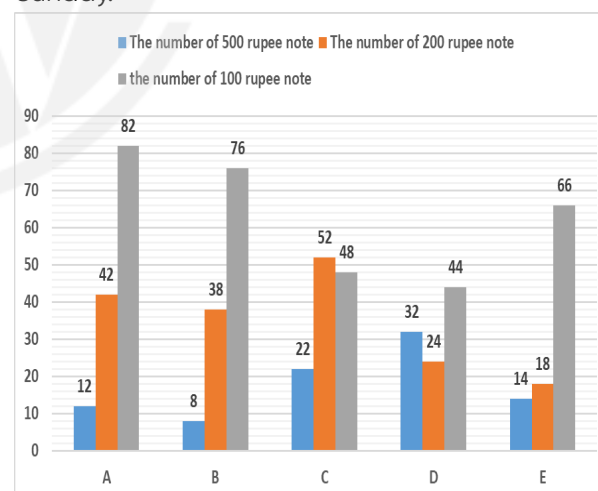
Find the ratio of the number of 200 and 100 rupee notes with shopkeeper E to the number of 500 rupee notes with shopkeepers B and C together?

(A) 9:4   (B) 5:8

(C) 14:5   (D) 9:5

(E) None of these

Q31 **Directions: Study the following data carefully and answer the questions accordingly.**

The given Bar graph shows the number of three different rupee notes i.e. 500, 200 and 100 with five different shopkeepers (A, B, C, D and E) on Sunday.
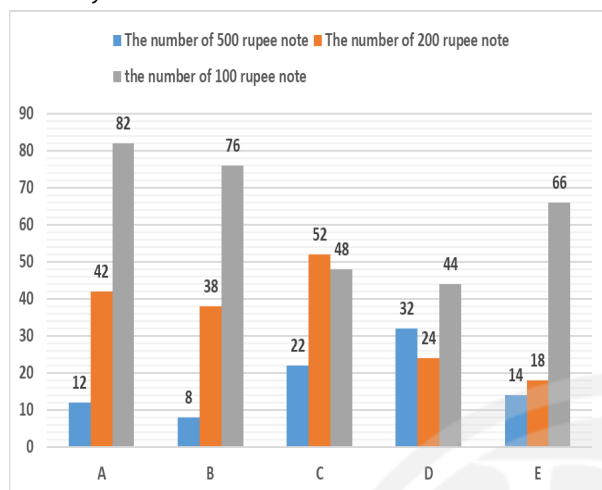
The number of 200 rupee notes with shopkeeper B is what percentage of the number of 500 rupee notes with shopkeepers A and E together?

(A) 35.23%   (B) 44.56%

(C) 58.46%   (D) 82.31 %

(E) None of these

Q32 **Direction: read the graph and answer carefully and answer the question that follows.**

Income and Expenditures of a company over the year (in lakh of rupees)
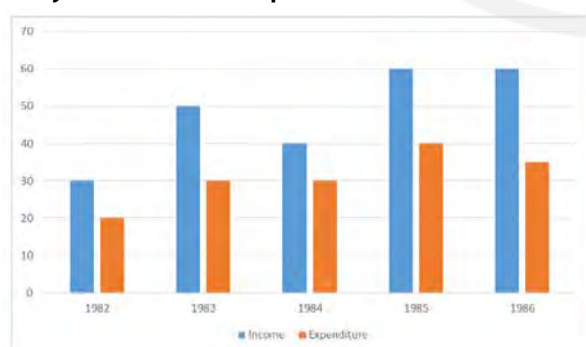
The number of years in which the income is more than the average income of the given year is

(A) One   (B) Two

(C) Three   (D) Four

(E) Five

Q33 **Direction: read the graph and answer carefully. Income and Expenditures of a company over the year (in lakh of rupees)**
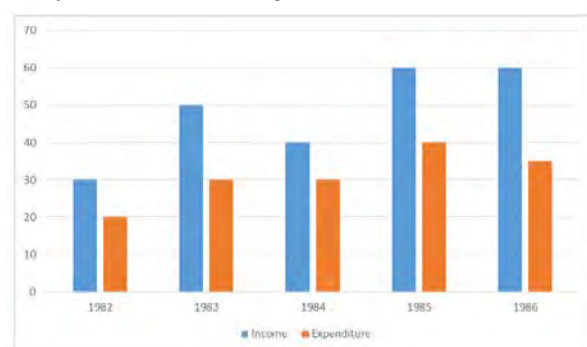
Percentage increase in profit in 1986 over 1982 is-

(A) 150%   (B) 120%

(C) 100%   (D) 80%

(E) None of these

Q34 **Direction: read the graph and answer carefully. Income and Expenditures of a company over the year (in lakh of rupees)**
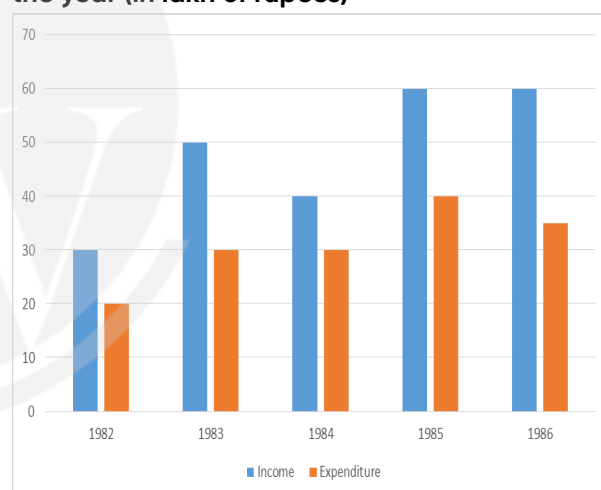
What is the difference in profit between 1983 and 1984?

(A) No profit   (B) 5 lakhs

(C) 10 lakhs   (D) 15 lakhs

(E) None of these

Q35 **Direction: read the graph and answer carefully. Income and Expenditures of a company over the year (in lakh of rupees)**
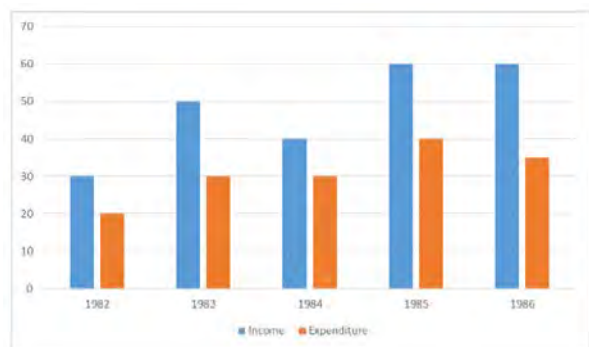
The ratio of the average income of all the years to the average profit is–

(A) 24:13   (B) 48:17

(C) 12:7   (D) 6:5

(E) None of these

Q36 **Direction: read the graph and answer carefully. Income and Expenditures of a company over the year (in lakh of rupees)**
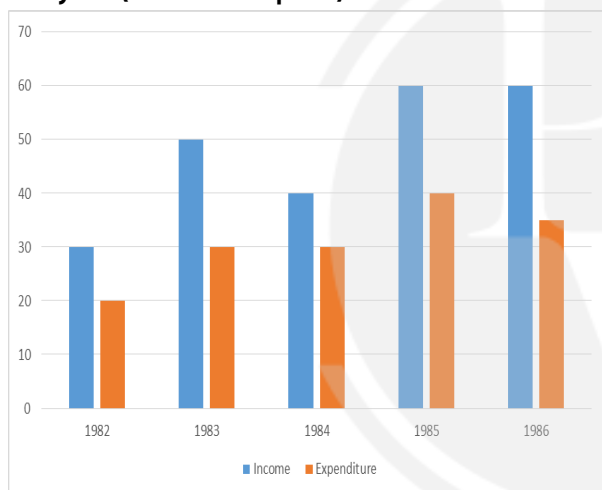
The total income exceeds the total expenditure over the years 1982 to 1986 by how much?

(A) 85 lakhs   (B) 105 lakhs

(C) 115 lakhs   (D) 120 lakhs

(E) 125 lakhs

Q37 Read the following information carefully and answer the questions based on it.

The bar chart given below shows the number of people applied for loan among three different loans provided by the bank – Home loan (HL), Personal loan (PL), and Business Loan (BL) in five different years. One person can apply for more than one loan.
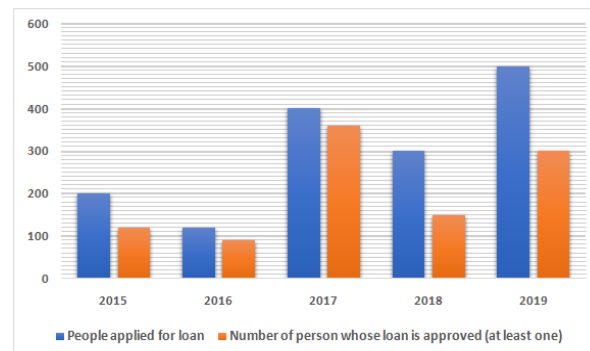
Note: Number of people applied for loan = Number of people whose loan is approved (at least one loan) + Number of people whose loan is rejected (all three loans).

Out of people whose at least one loan approved in 2018, 60% got disbursement in first week. Number of people who got disbursement in the first week of 2017 out of those whose at least one loan approved in 2017 is twice of people in 2018 who didn't get disbursement in first week. Find number of people in 2017 who didn't get disbursement in first week is what % of the people who applied for the loan in the same year?

(A) 66.66%   (B) 45%

(C) 60%   (D) 40%

(E) 70%

Q38 Read the following information carefully and answer the questions based on it.

The bar chart given below shows the number of people applied for loan among three different loans provided by the bank – Home loan (HL), Personal loan (PL), and Business Loan (BL) in five different years. One person can apply for more than one loan.
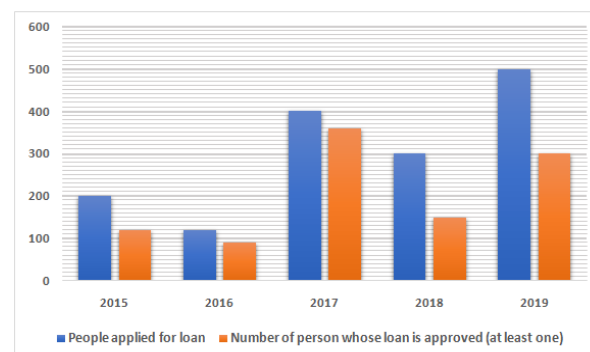
Note: Number of people applied for loan = Number of people whose loan isapproved (at least one loan) + Number of people whose loan is rejected (all three loans).

Find average number of people in all years together whose all three loans not approved?

(A) 95   (B) 90

(C) 110   (D) 120

(E) 100

Q39 Read the following information carefully and answer the questions based on it.

The bar chart given below shows the number of people applied for loan among three different loans provided by the bank – Home loan (HL), Personal loan (PL), and Business Loan (BL) in five different years. One person can apply for more than one loan.

■ People applied for loan   ■ Number of person whose loan is approved (at least one)
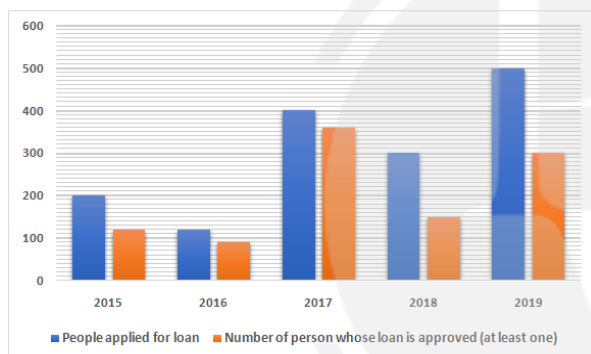
Note: Number of people applied for loan = Number of people whose loan is approved (at least one loan) + Number of people whose loan is rejected (all three loans).

40% of people whose loans were not approved in 2019 applied for loans again in 2020. Number of people whose at least one loan approved in 2020 is six times of those whose loan not approved in 2017. Out of total people whose at least one loan approved in 2020, 80% people applied loan for the first time in 2020. Find the number of people those reapplied in 2020 whose loan is not approved?

(A) 48   (B) 30

(C) 40   (D) 32

(E) 36

Q40

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

The bar graph given below shows the number of 'Go-kart' tickets sold by two different websites namely 'A' and 'B', on four different days of a week.

■ Number of tickets sold by website 'A'
■ Number of tickets sold by website 'B'
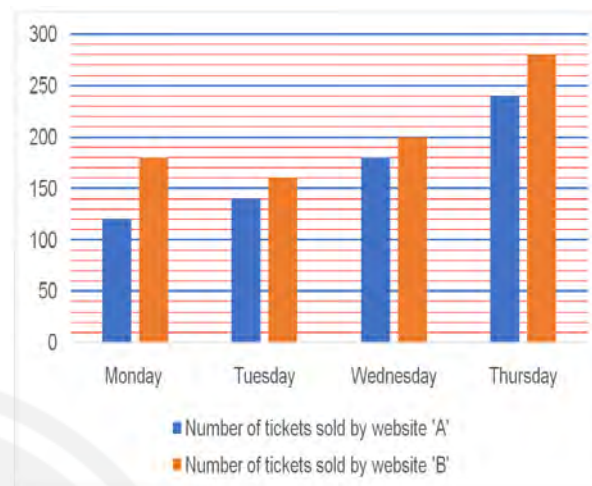
Find the ratio of number of tickets sold by website 'B' on Tuesday to that by website 'A' on Thursday.

(A) 8:7   (B) 2:3

(C) 1:2   (D) 2:1

(E) 3:4

Q41 **Directions: Answer the questions based on the information given below.**

The bar graph given below shows the number of 'Go-kart' tickets sold by two different websites namely 'A' and 'B', on four different days of a week.

■ Number of tickets sold by website 'A'
■ Number of tickets sold by website 'B'
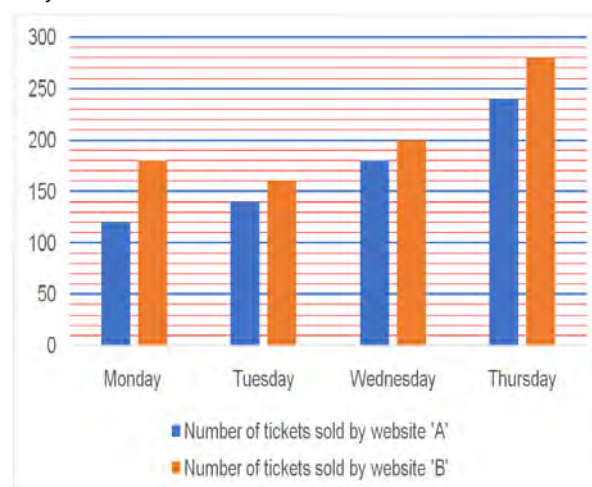
If selling price of Go-kart tickets at website 'A' and website 'B' is Rs. 100 per 6 tickets and Rs. 100 per 5 tickets, respectively, then find the difference between revenue generated by both websites on Wednesday by selling Go-kart tickets.

(A) Rs. 1,000   (B) Rs. 1,200

(C) Rs. 800   (D) Rs. 1,500

(E) none of these

Q42 Directions: Answer the questions based on the information given below.

The bar graph given below shows the number of 'Go-kart' tickets sold by two different websites namely 'A' and 'B', on four different days of a week.
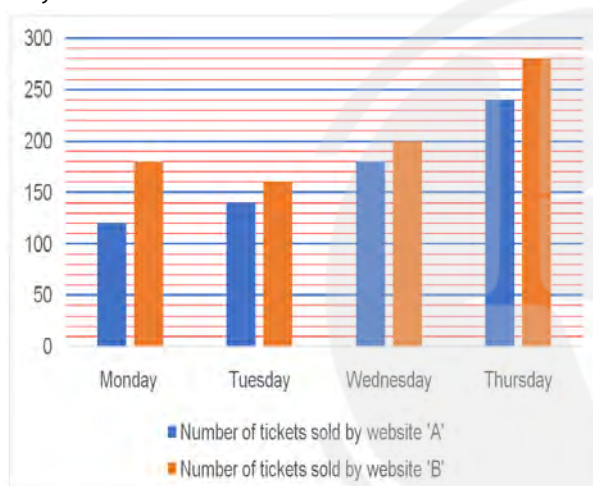
Find the average number of tickets sold by website 'B' on Monday, Wednesday and Thursday.

(A) 220   (B) 180

(C) 345   (D) 600

(E) none of these

Q43 Directions: Answer the questions based on the information given below.

The bar graph given below shows the number of 'Go-kart' tickets sold by two different websites namely 'A' and 'B', on four different days of a week.
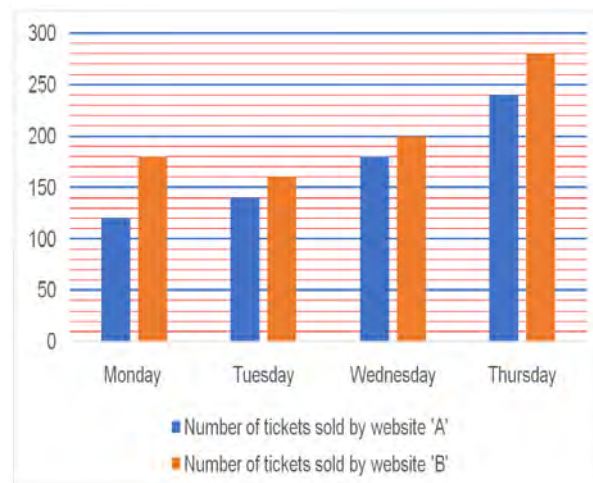
If on Sunday, total number of Go-kart tickets sold by given two websites together was 40% more than that on Thursday, then find the number of Go-kart tickets sold on Sunday by given two websites together.

(A) 228   (B) 450

(C) 600   (D) 728

(E) none of these

Q44 Directions: Answer the questions based on the information given below.

The bar graph given below shows the number of 'Go-kart' tickets sold by two different websites namely 'A' and 'B', on four different days of a week.
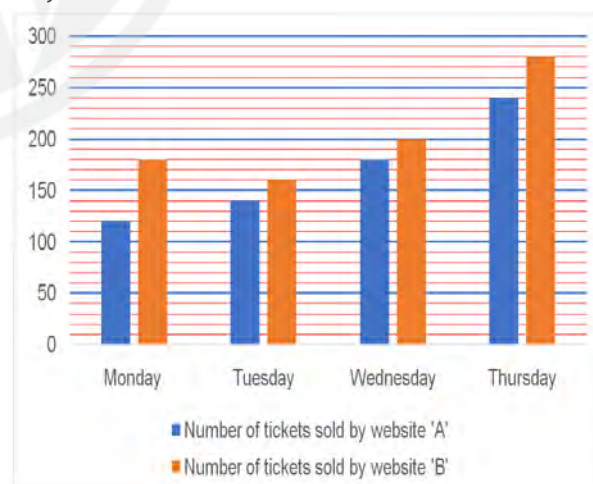
Find the number of tickets sold by website 'A' on Monday and Wednesday together.

(A) 450   (B) 280

(C) 300   (D) 110

(E) none of these

Q45 Bar graph given below shows difference between orange and violet flags in four different baskets and total number of flags in these four baskets. Read the data carefully and answer the questions.

Note – Each basket contains three color of flags = Orange + Violet + Yellow

■ Diffrence between Orange & Violet flags ■ Total flags in basket
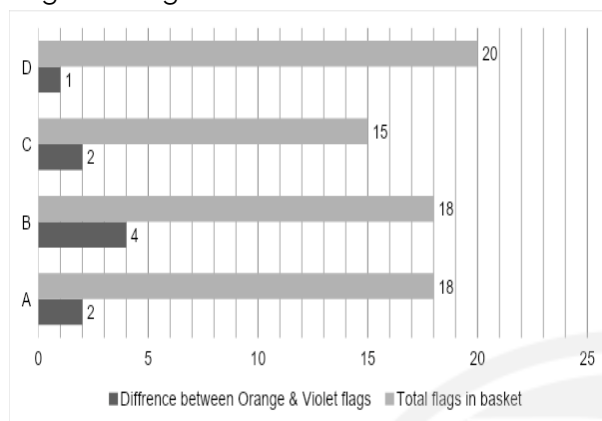
If three flags are taken out form the basket C, then what will be probability such that maximum orange flags are left in the basket?

(A) $\frac{2}{3}$

(B) $\frac{8}{15}$

(C) $\frac{2}{5}$

(D) $\frac{3}{5}$

(E) $\frac{2}{7}$

Q46 Bar graph given below shows difference between orange and violet flags in four different baskets and total number of flags in these four baskets. Read the data carefully and answer the questions.

Note – Each basket contains three color of flags = Orange + Violet + Yellow

■ Diffrence between Orange & Violet flags ■ Total flags in basket
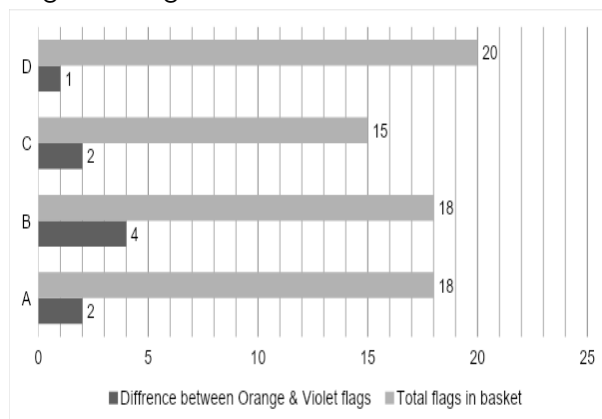
If one flag is taken out from basket B and probability of that flag being violet is $\frac{2}{9}$, then find the ratio of yellow flags to orange flags in the basket B?

(A) 1 : 2 (B) 3 : 4

(C) 3 : 8 (D) 2 : 3

(E) 3 : 2

Level-2

Q1 Bar graph given below shows difference between orange and violet flags in four different baskets and total number of flags in these four baskets. Read the data carefully and answer the questions.

Note – Each basket contains three color of flags = Orange + Violet + Yellow
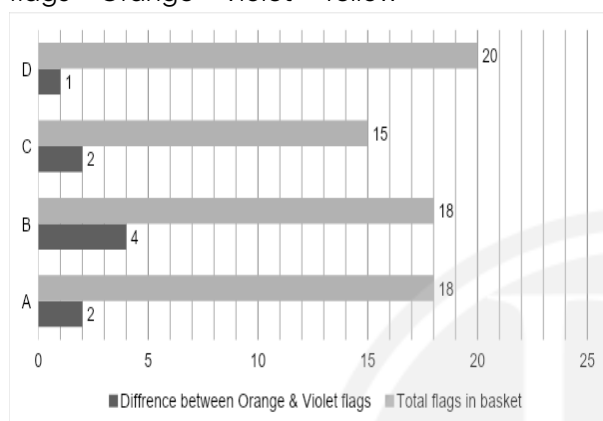
Orange flags are more than violet flags in both baskets A & C and ratio of violet flags in basket A to that of in basket C is 6:5. If One flag from the basket A and two flags from the basket C are taken out and difference between probability of flags taken out from both the basket being orange is $\frac{11}{45}$, then what is the total number of yellow flags in basket A & basket C together?

(A) 9   (B) 5

(C) 6   (D) 7

(E) 10

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

Five racers A, B, C, D and E participated in a 200 meter race.

Bar graph given below shows the time taken by each racer to complete 1st 100 meters and total time taken by each racer to complete the race according to their positions, at which they finished the race.
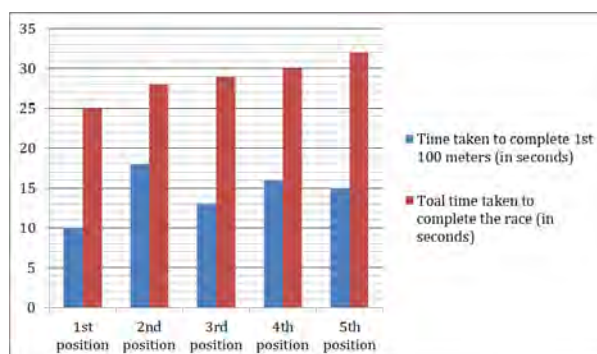
B finished the race just before E and only two persons finished the race between B and C. C didn't finish his race after E. Only 1 person finished the race between A and E.

Find the average time taken by B, C and D to complete the remaining 100 meters?

(A) 13 seconds   (B) 15 seconds

(C) 10 seconds   (D) 12 seconds

(E) 11 seconds

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

Five racers A, B, C, D and E participated in a 200 meter race.

Bar graph given below shows the time taken by each racer to complete 1st 100 meters and total time taken by each racer to complete the race according to their positions, at which they finished the race.
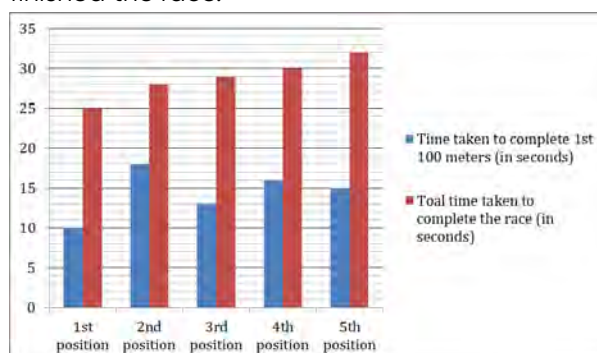
B finished the race just before E and only two persons finished the race between B and C. C didn't finish his race after E. Only 1 person finished the race between A and E.

Who among the five racers took maximum time to complete the remaining 100 meters?

(A) A   (B) B

(C) C   (D) D

(E) E

Q4 Direction: Study the data carefully and answer the following questions.

Five racers A, B, C, D and E participated in a 200 meter race.

Bar graph given below shows the time taken by each racer to complete 1st 100 meters and total time taken by each racer to complete the race according to their positions, at which they finished the race.
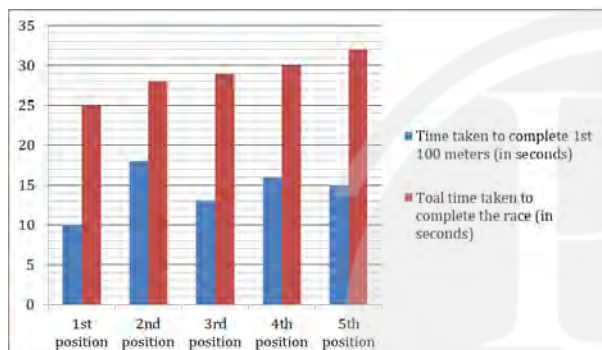
B finished the race just before E and only two persons finished the race between B and C. C didn't finish his race after E. Only 1 person finished the race between A and E.

Total time taken by A to finish the race is what percent more or less than that taken by C to finish the race?

(A) 16%

(B) 20%

(C) Cannot be determined

(D) 12%

(E) 28%

Q5 Direction: Study the data carefully and answer the following questions.

Five racers A, B, C, D and E participated in a 200 meter race.

Bar graph given below shows the time taken by each racer to complete 1st 100 meters and total time taken by each racer to complete the race

according to their positions, at which they finished the race.
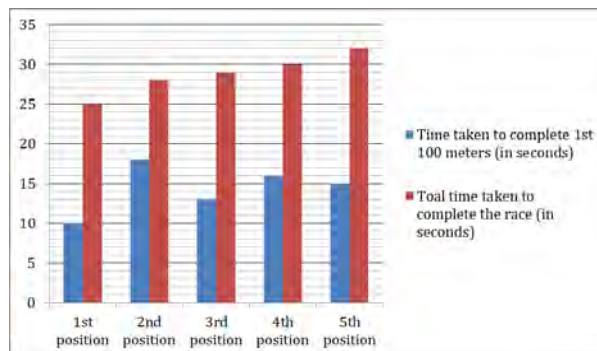
B finished the race just before E and only two persons finished the race between B and C. C didn't finish his race after E. Only 1 person finished the race between A and E.

Find the difference between total time taken by C to finish the race and that taken by the person, who finished the race at 5th position?

(A) 5 seconds   (B) 1 seconds

(C) 7 seconds   (D) 2 seconds

(E) 3 seconds

Q6 Direction: Study the data carefully and answer the following questions.

Five racers A, B, C, D and E participated in a 200 meter race.

Bar graph given below shows the time taken by each racer to complete 1st 100 meters and total time taken by each racer to complete the race according to their positions, at which they finished the race.
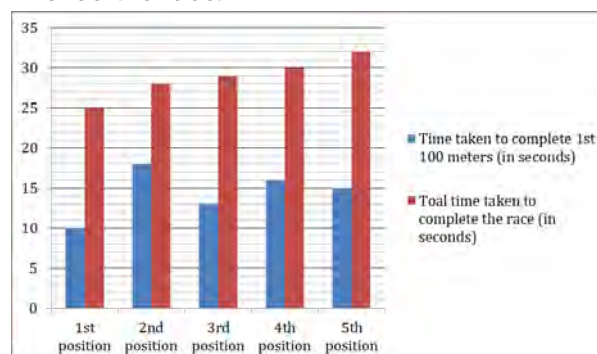
B finished the race just before E and only two persons finished the race between B and C. C didn't finish his race after E. Only 1 person finished the race between A and E.

Find the ratio of total time taken by D and E together to complete the 1st 100 meters to that taken by D and E together to complete the remaining 100 meters?

(A) 7: 5   (B) 43: 37

(C) 6: 5   (D) 11: 9

(E) 3: 2

Q7 **Direction: Study the data carefully and answer the following questions.**

Data given below is related to the number of persons, who joined company A and company B in five different years 2011, 2012, 2013, 2014 and 2015.

Bar graph given below shows the following data.

No. of persons, who joined company B in the given years as percent of those, who joined company B in 2011
No. of persons, who joined company A in the given years as percent of those, who joined company A in 2011
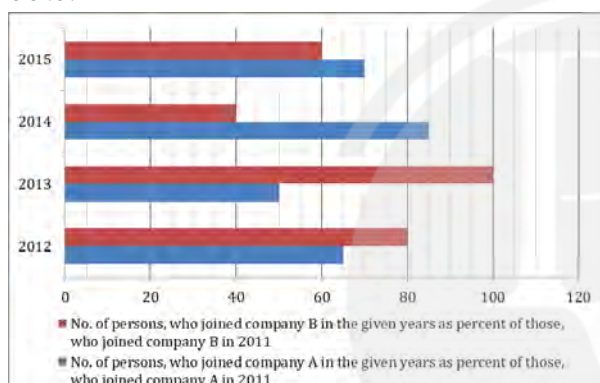
Note: Total number of persons, who joined company A and B in 2011, is 35, which is 10 more than those, who joined company A and B in 2013.

If there were 120 employees in company A before 2011 and 30 employees left company A till the end of 2014, then find that number of employees in company A has increased by what percent in the period of 2011-14?

(A) 20%   (B) 16.67%

(C) 22.5%   (D) 25%

(E) None of these

Q8 **Direction: Study the data carefully and answer the following questions.**

Data given below is related to the number of persons, who joined company A and company B in five different years 2011, 2012, 2013, 2014 and 2015.

Bar graph given below shows the following dats.

No. of persons, who joined company B in the given years as percent of those, who joined company B in 2011
No. of persons, who joined company A in the given years as percent of those, who joined company A in 2011
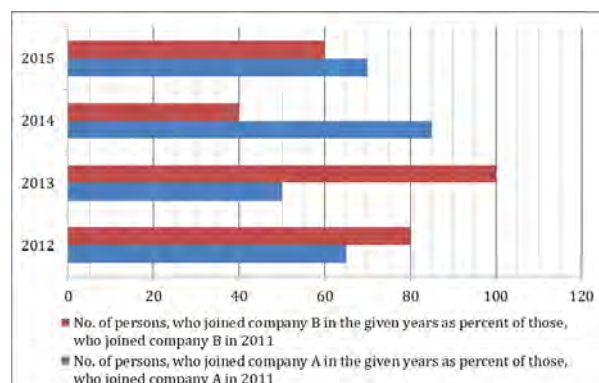
Note: Total number of persons, who joined company A and B in 2011, is 35, which is 10 more than those, who joined company A and B in 2013.

Total number of persons, who joined company B in 2012, 2013 and 2014 together, is what percent of those, who joined company A in 2012, 2013 and 2014 together?

(A) 82.5%   (B) 90%

(C) 80%   (D) 87.5%

(E) None of these

Q9 **Direction: Study the data carefully and answer the following questions.**

Data given below is related to the number of persons, who joined company A and company B in five different years 2011, 2012, 2013, 2014 and 2015.

Bar graph given below shows the following dats.

No. of persons, who joined company B in the given years as percent of those, who joined company B in 2011
No. of persons, who joined company A in the given years as percent of those, who joined company A in 2011
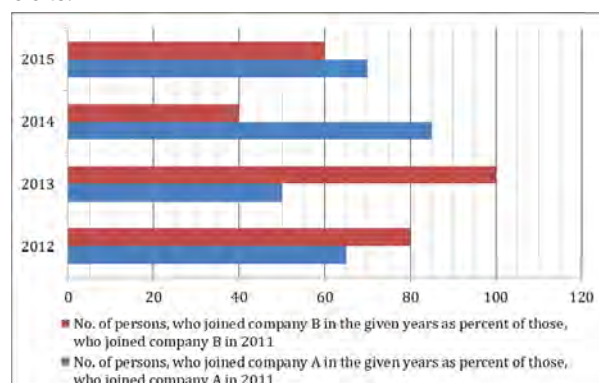
Note: Total number of persons, who joined company A and B in 2011, is 35, which is 10 more than those, who joined company A and B in 2013.

Find the difference between total number of persons, who joined company A in all the 5 years together and total number of persons, who joined company B in all the 5 years together?

(A) 19   (B) 17
(C) 16   (D) 10
(E) None of these

Q10 Direction: Study the data carefully and answer the following questions.

Data given below is related to the number of persons, who joined company A and company B in five different years 2011, 2012, 2013, 2014 and 2015.

Bar graph given below shows the following dats.
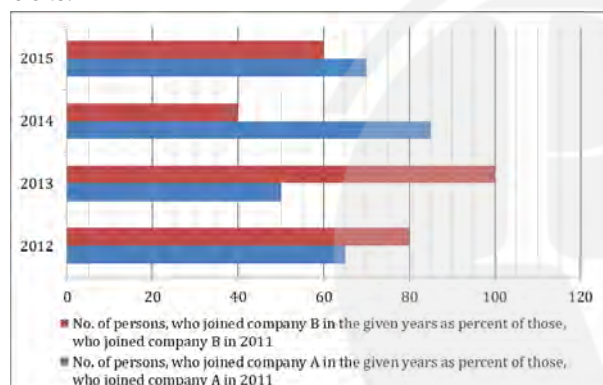
Note: Total number of persons, who joined company A and B in 2011, is 35, which is 10 more than those, who joined company A and B in 2013.

If number of persons, who joined company C in 2013, is 80% of those, who joined company B in 2013 and number of persons, who joined company C in 2015, is $166\text{-}\frac{2}{3}$% of those, who joined company B in 2015, then find the ratio of total number of employees, who joined company A in 2013 and 2015 together to those, who joined company C in 2013 and 2015 together?

(A) 12: 13   (B) 8: 9
(C) 24: 25   (D) 4: 5
(E) None of these

Q11

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

Data given below is related to the number of persons, who joined company A and company B in five different years 2011, 2012, 2013, 2014 and 2015.

Bar graph given below shows the following dats.
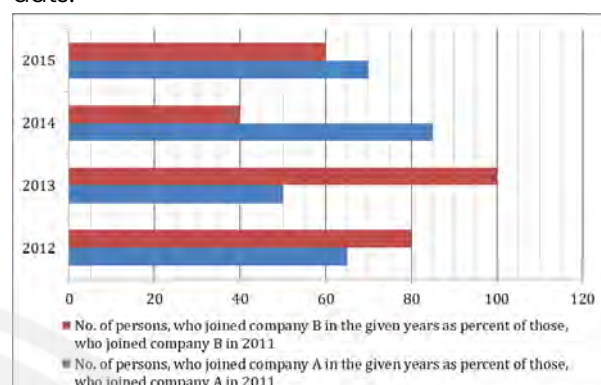
Note: Total number of persons, who joined company A and B in 2011, is 35, which is 10 more than those, who joined company A and B in 2013.

If ratio of male to female, who joined company A in 2015, is 5: 2 and ratio of male to female, who joined company B in 2015, is 1: 2, then find the difference between total number of males, who joined company A and company B in 2015 and total number of females, who joined company A and company B in 2015?

(A) 3   (B) 7
(C) 6   (D) 4
(E) None of these

Q12 Directions: Study the following bar graph carefully and answer the questions accordingly.

There are three types of companies that hire thousands of employees for five consecutive years.
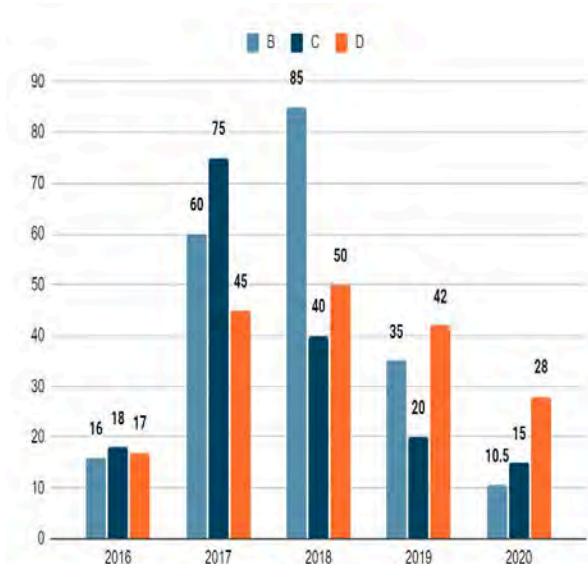
What percentage more employees were hired overall in 2017 by all three companies together than in 2018 by all three companies together?

(A) $6\frac{5}{7}$ %

(B) $5\frac{3}{7}$ %

(C) $2\frac{6}{7}$ %

(D) $4\frac{1}{7}$ %

(E) None of these

Q13 **Directions: Study the following bar graph carefully and answer the questions accordingly.**

There are three types of companies that hire thousands of employees for five consecutive years.
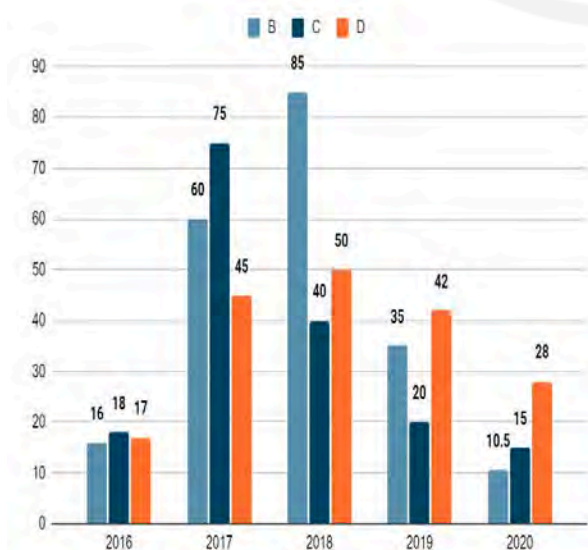
What percentage of the total number of employees that company C hired between the years of 2016 and 2020 was also the total of all other years combined?

(A) 35.5%   (B) 20.96%

(C) 24.44%   (D) 23%

(E) None of these

Q14 **Directions: Study the following bar graph carefully and answer the questions accordingly.**

There are three types of companies that hire thousands of employees for five consecutive years.
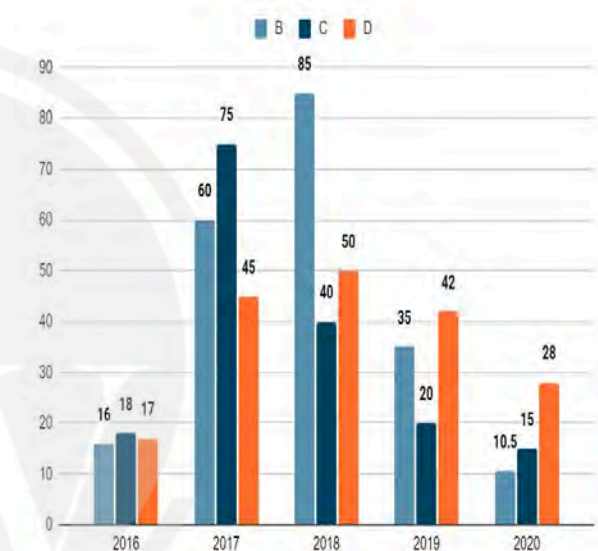
What is the difference between the average number of employees hired by Company B and Company D over all the years together?

(A) 4.5 thousand   (B) 4.33 thousand

(C) 4.9 thousand   (D) 4.75 thousand

(E) None of these

Q15 **Directions: Study the following bar graph carefully and answer the questions accordingly.**

There are three types of companies that hire thousands of employees for five consecutive years.

Banking
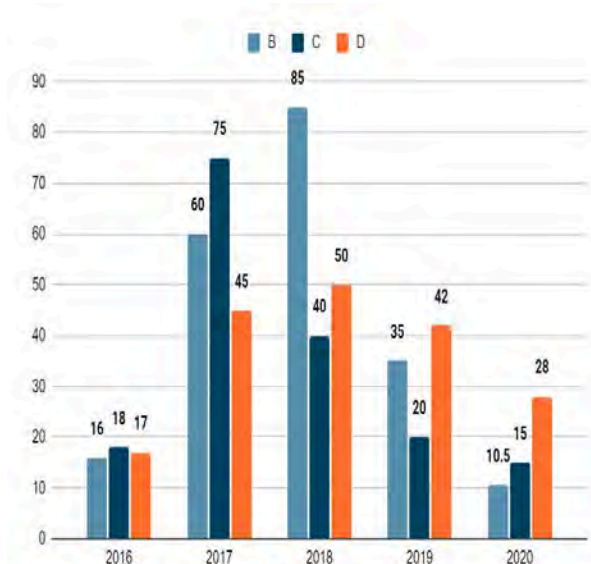
If company B hired 40% of the female employees in 2018, and all three companies hired 60% of the male employees that year, what was the total number of female employees hired by companies C and D together?

(A) 54 thousand   (B) 36 thousand

(C) 20 thousand   (D) 34 thousand

(E) None of these

Directions (16-20) Read the following passage and answer the given questions.

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

A person covers a certain distance by five vehicles: Bus, Train, Car, Bike, and Ship. Speed of each vehicle is different and the person covers a certain percent of total distance by these vehicles.

Bar graph given below shows the percent of distance covered out of total distance and time taken (in min) by vehicles to cover those parts of distance.
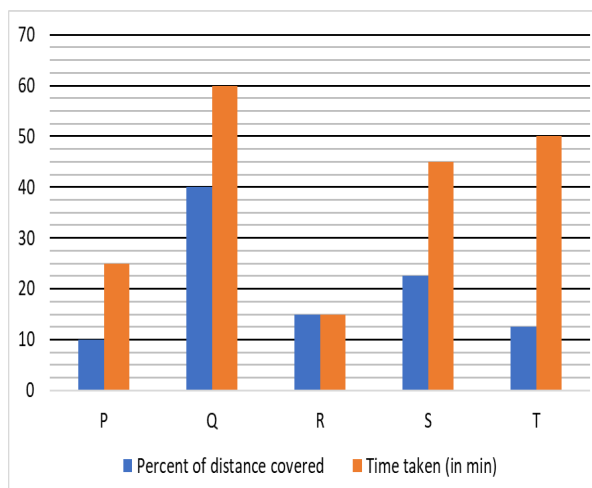
Note:

1. Speed of Train is 32 km/h more than the speed of Bus.

2. Ship travels in a river against the stream which means time given in the graph for the ship is time taken against the stream.

Q16 If the person covers the whole distance except that covered by ship via Bus, then how much extra time will he take to complete the journey?

(A) 73 min 45 seconds

(B) 72 min

(C) 75 min 15 seconds

(D) 70 min 30 seconds

(E) None of these

Q17 Had the speed of Train been 10 km/h more, then by what percent would the speed of the bike be reduced in order to complete the journey in the actual time?

(A) 13.2%   (B) 11.6%

(C) 12.9%   (D) 14.6%

(E) 10.8%

Q18 Had the ship been traveling along the stream, then it would take 12.5 min less than actual time to cover its part of the journey. Find the speed of the stream of the river.

(A) 15 km/h   (B) 5 km/h

(C) 10 km/h   (D) 2.5 km/h

(E) None of these

Android App | **iOS App** | **PW Website**

Q19 Find the average speed of the person for the whole journey.

(A) 64.5 km/h   (B) 65 km/h

(C) 56.5 km/h   (D) 60 km/h

(E) 61.5 km/h

Q20 If the person completes half of the total journey by Train and the remaining half by Bus. Find the total time taken to complete the journey.

(A) 3 hours 20 min   (B) 3 hours 10 min

(C) 2 hours 50 min   (D) 2 hours 40 min

(E) 4 hours

Directions (21-24) Read the following passage and answer the given questions.

Directions: Answer the questions on the basis of the information given below.

Given below are the runs scored by eleven cricket players named Sachin, Virat, Saurav, Sehwag, Rahul, Gautam, Jadeja, VVS, Dhoni, Shikhar, and Raina in their respective careers.
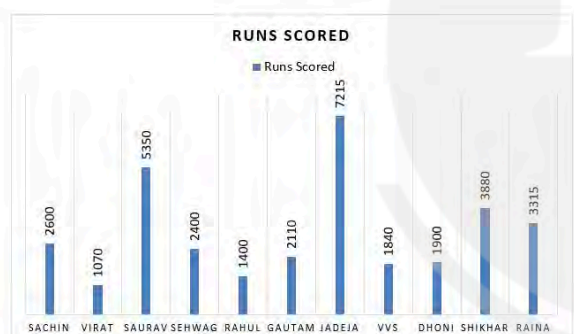
RUNS SCORED

Q21 How many of the given players had a contribution of less than 10% in the total runs scored by all these given players in their careers?

(A) 7   (B) 6

(C) 5   (D) 8

(E) 9

Q22 Approximately by what percentage are the runs scored by the Rahul greater than that scored by the Virat in their career?

(A) 25%   (B) 27%

(C) 29%   (D) 31%

(E) 33%

Q23 What is the approximate percentage contribution of the runs scored by Dhoni and VVS together in the total runs scored by all the given players during their careers?

(A) 9.12%   (B) 8.75%

(C) 11.29%   (D) 14.56%

(E) 15.56%

Q24 What is the ratio of the number of players who scored more than average to the number of players who scored less than average runs scored by all batsmen?

(A) 4: 5   (B) 5: 6

(C) 4:7   (D) 5: 7

(E) 2: 3

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

Bar graph given below shows the time taken (in min) by five persons to cover 40 km distance when traveling with 10 km/h more speed than usual.

Time taken (min)
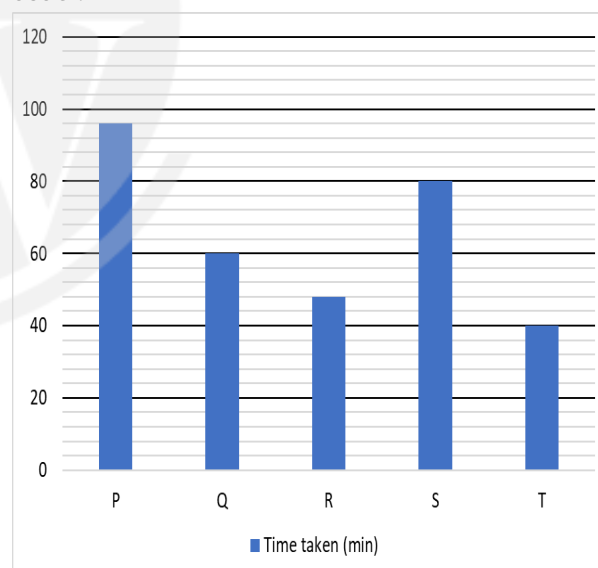
Person S started running and after 't' min, person T started chasing him. If T can catch S after running for 48 min. Find the value of 't'.

(A) 96 min   (B) 60 min

(C) 84 min   (D) 64 min

(E) 72 min

Q26

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

Bar graph given below shows the time taken (in min) by five persons to cover 40 km distance when traveling with 10 km/h more speed than usual.
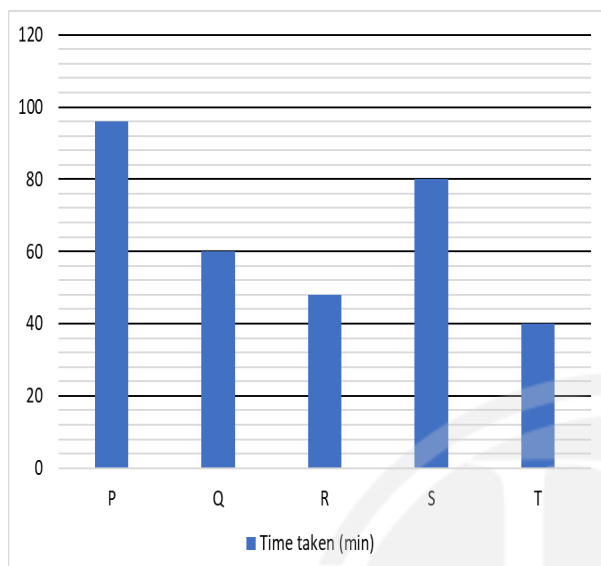
If persons P and Q are initially 27 km apart from each other they start traveling towards each other simultaneously. Find the time after which they will meet each other.

(A) 45 min   (B) 40 min

(C) 48 min   (D) 36 min

(E) 32 min

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

Bar graph given below shows the time taken (in min) by five persons to cover 40 km distance when traveling with 10 km/h more speed than usual.
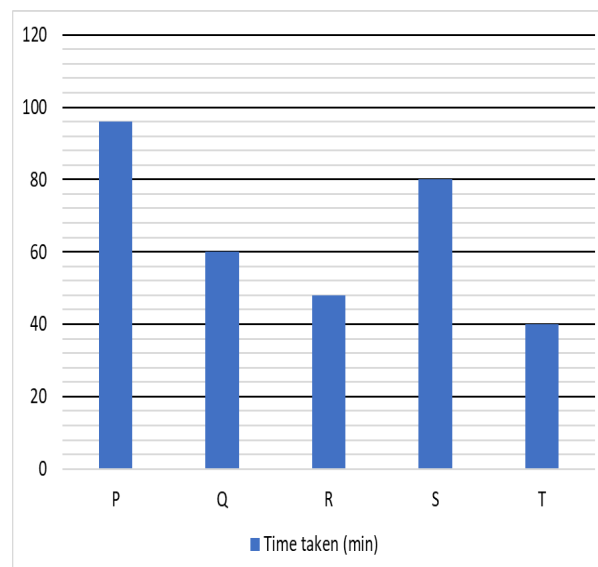
If Q decreases his speed by 10%, then the time taken by him to cover 36 km is how much more than the time taken by him to cover the same distance with actual speed.

(A) 10 min   (B) 8 min

(C) 12 min   (D) 6 min

(E) 15 min

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

Bar graph given below shows the time taken (in min) by five persons to cover 40 km distance when traveling with 10 km/h more speed than usual.
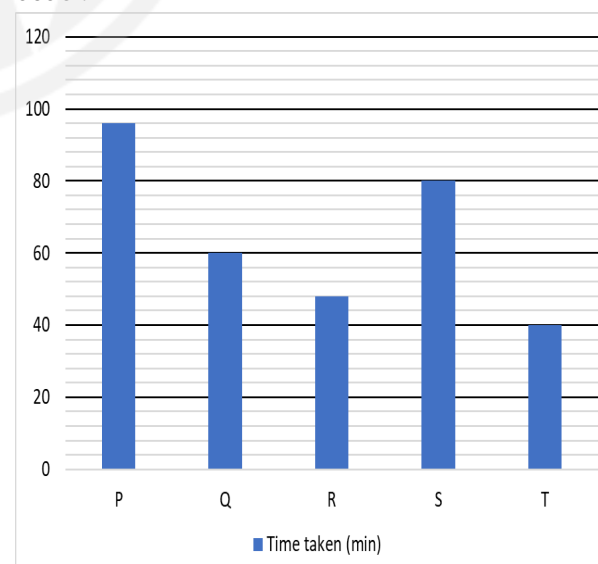
Find the total distance covered by person S in 3.2 hours.

(A) 68 km   (B) 72 km

(C) 60 km   (D) 80 km   (E) 64 km

Level-3

Q1 Directions: Study the data carefully and answer the following questions:

Data given below shows the number of persons who attended five different marriage parties A, B, C, D and E on a particular day.

Bar graph given below shows the total number of persons in each of the given marriage parties and percentage of number of persons from bride's side.
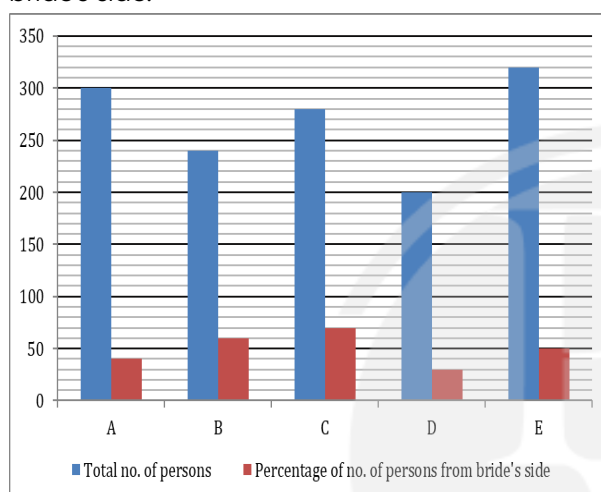
Note: Total person in a marriage party = Number of persons from bride's side + Number of persons from groom's side

In marriage party E, 62.5% persons from bride's side are male and 50% persons from groom's side are male, then find the ratio of number males to the number of females in marriage party E?

(A) 6: 5   (B) 18: 13

(C) 20: 17   (D) 9: 7

(E) None of these

Q2 Directions: Study the data carefully and answer the following questions:

Data given below shows the number of persons who attended five different marriage parties A, B, C, D and E on a particular day.

Bar graph given below shows the total number of persons in each of the given marriage parties and percentage of number of persons from bride's side.
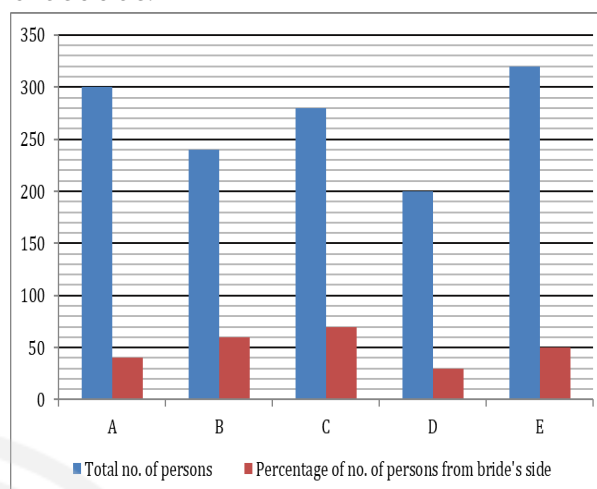
Note: Total person in a marriage party = Number of persons from bride's side + Number of persons from groom's side

In marriage party A, 45% persons from groom's side are female and in marriage party B, 25% persons from groom's side are female, then find the ratio of number of males from groom's side in marriage party A to those in marriage party B?

(A) 11:8   (B) 3: 2

(C) 9: 7   (D) 99: 70

(E) 33:25

Q3 Directions: Study the data carefully and answer the following questions:

Data given below shows the number of persons who attended five different marriage parties A, B, C, D and E on a particular day.

Bar graph given below shows the total number of persons in each of the given marriage parties and percentage of number of persons from bride's side.
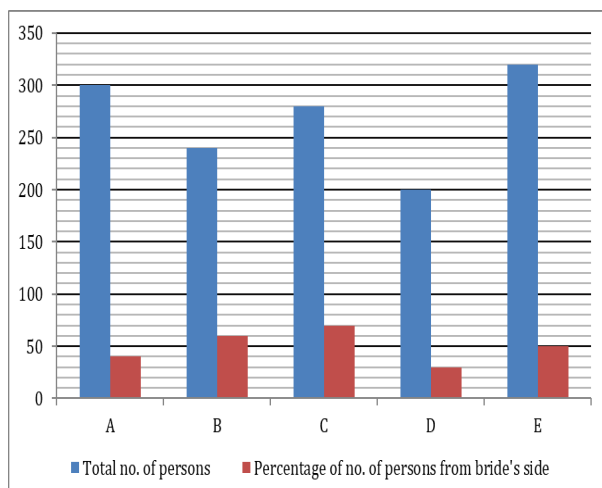
Note: Total person in a marriage party = Number of persons from bride's side + Number of persons from groom's side

Find the difference between total number of persons from bride's side in all the 5 marriage parties together and total number of persons from groom's side in all the 5 marriage parties together?

(A) 10   (B) 24

(C) 20   (D) 12

(E) None of these

Q4 Directions: Study the data carefully and answer the following questions:

Data given below shows the number of persons who attended five different marriage parties A, B, C, D, and E on a particular day.

Bar graph given below shows the total number of persons in each of the given marriage parties and the percentage of the number of persons from bride's side.
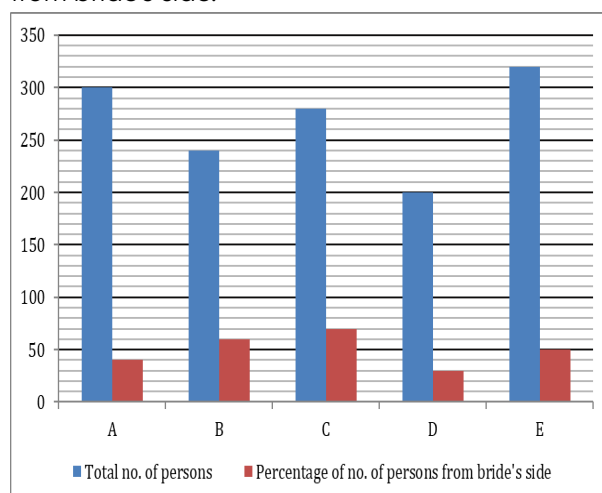
Note: Total person in a marriage party = Number of persons from bride's side + Number of persons from groom's side

Total number of persons from groom's side in marriage parties B and C together is approximately what percent of total number of persons from bride's side in marriage parties B and C together?

(A) 49%   (B) 53%

(C) 45%   (D) 58%

(E) None of these

Q5 Directions: Study the data carefully and answer the following questions:

Data given below shows the number of persons who attended five different marriage parties A, B, C, D and E on a particular day.

Bar graph given below shows the total number of persons in each of the given marriage parties and percentage of number of persons from bride's side.
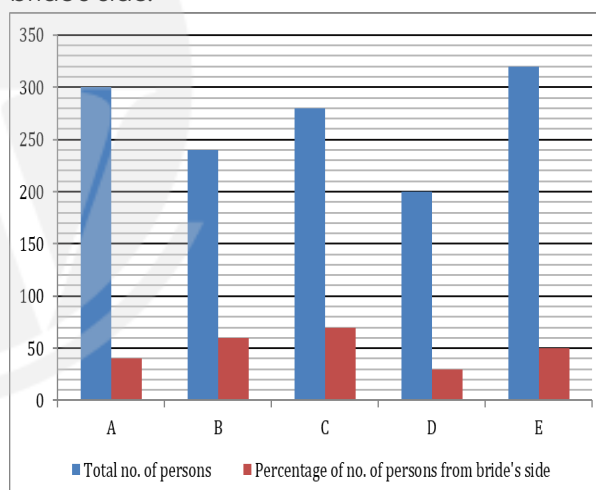
Note: Total person in a marriage party = Number of persons from bride's side + Number of persons from groom's side

Total number of persons from groom's side in marriage parties C and E together is what percent of total number of persons in marriage parties C and E together?

(A) 35.33%   (B) 40.67%

(C) 28.11%   (D) 42.09%

(E) None of these

Q6

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

The given Bar graph shows the total number of three different Pens i.e. red, blue and green sold on five different days (Monday, Tuesday, Wednesday, Thursday and Friday).

Note= The number of red pens Sold on Thursday is 150 , number of Blue pens sold Tuesday is 120& number of green pens sold on Monday is 280.
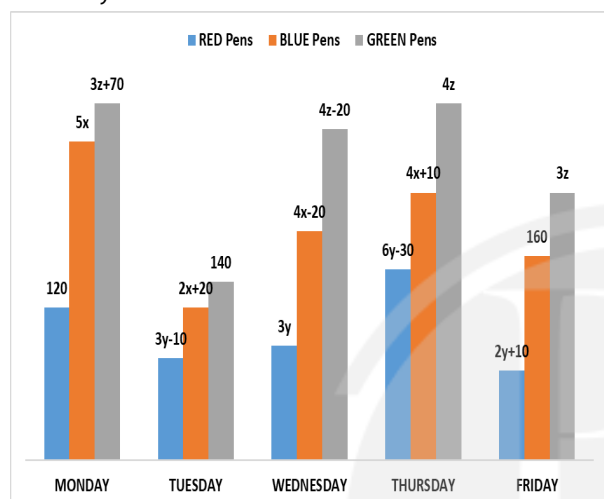
What is the ratio of total green pens sold on Friday to the number of red pens sold on Thursday?

(A) 7:2   (B) 7:6

(C) 7:5   (D) 7:9

(E) 3:5

Q7 Directions: Study the following data carefully and answer the questions accordingly.

The given Bar graph shows the total number of three different Pens i.e. red, blue and green sold on five different days (Monday, Tuesday, Wednesday, Thursday and Friday).

Note= The number of red pens Sold on Thursday is 150 , number of Blue pens sold Tuesday is 120& number of green pens sold on Monday is 280.
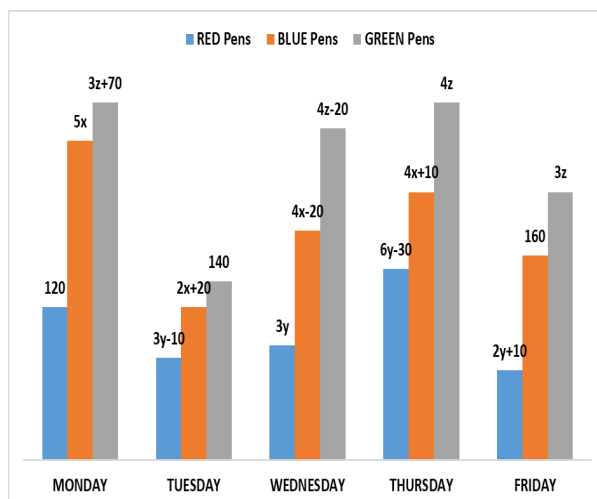
On Monday, the ratio of the total number of black and blue pens sold is 7:5, then find the average number of black, red, blue and green Pens sold?

(A) 210   (B) 250

(C) 240   (D) 320

(E) None of these

Q8 Directions: Study the following data carefully and answer the questions accordingly.

The given Bar graph shows the total number of three different Pens i.e. red, blue and green sold on five different days (Monday, Tuesday, Wednesday, Thursday and Friday).

Note= The number of red pens Sold on Thursday is 150 , number of Blue pens sold Tuesday is 120& number of green pens sold on Monday is 280.
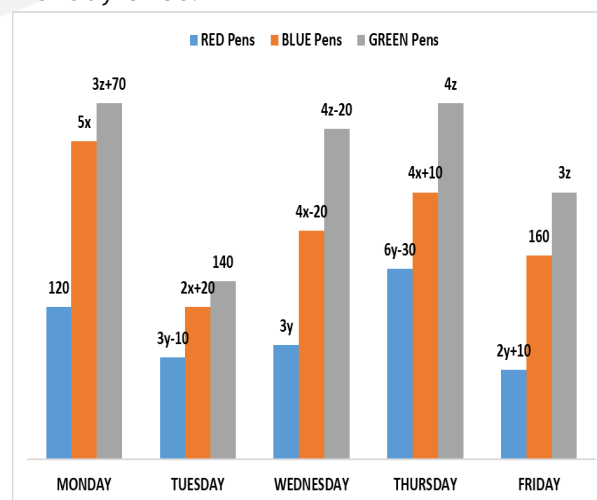
If the total number of red, blue and green pens sold on Saturday is 20% more than that of

Thursday, and the cost of each pen is Rs 10. Find the total revenue generated by selling all the pens?

(A) 7680   (B) 7500

(C) 7580   (D) 7400

(E) None of these

Q9 Directions: Study the following data carefully and answer the questions accordingly.

The given Bar graph shows the total number of three different Pens i.e. red, blue and green sold on five different days (Monday, Tuesday, Wednesday, Thursday and Friday).

Note= The number of red pens Sold on Thursday is 150 , number of Blue pens sold Tuesday is 120& number of green pens sold on Monday is 280.
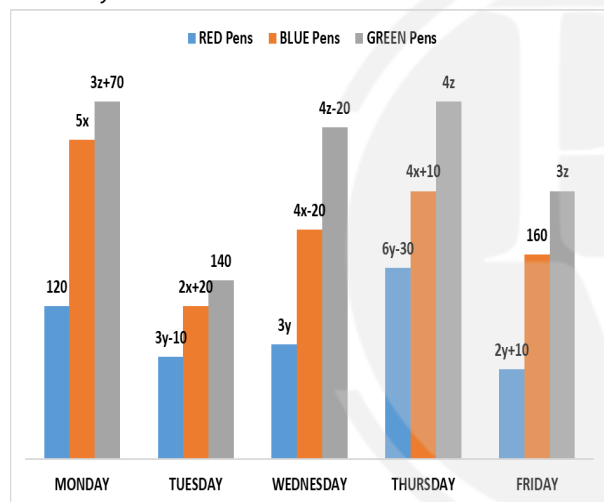
The total number of red, blue and green Pens sold on Tuesday is how much more/less than the total number of green pens sold on Wednesday, Thursday and Friday?

(A) 650 less   (B) 200 more

(C) 680 less   (D) 410 less

(E) None of these

Q10 Direction : Bar graph shows percentage distribution of orders delivered in week III out of the orders received on sunday of week II and numbers of orders returns on any given days as a % of total no. of orders delivered till previous days. Read the data carefully and answer the questions.
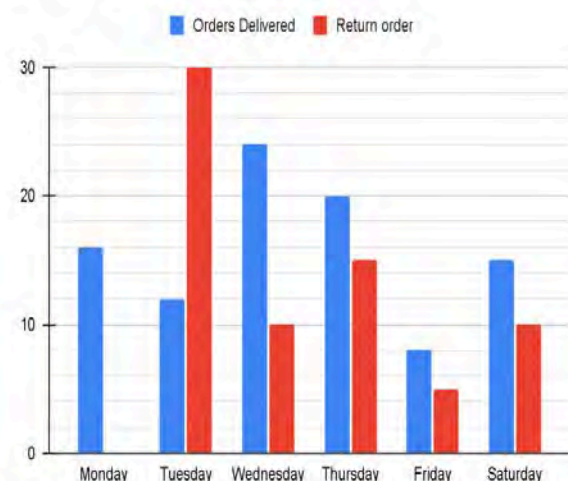
16. Note –

(i) Total order received on Sunday of Week II it will be delivered on next six days of week (Monday, Tuesday, Wednesday, Thursday, Friday & Saturday).

(ii) Remaining orders which did not delivered in these six days of week II are 50.

(iii) orders which received did not return on same day it has to be return next day of delivery. No orders are return on Sunday of week III

Q. Find the ratio of total orders returned on Tuesday & Thursday together to total orders received on Saturday?

(A) 102 : 75   (B) 105 : 13

(C) 75 : 102   (D) 12 : 25

(E) None of these

Q11 Direction : Bar graph shows percentage distribution of orders delivered in week III out of the orders received on sunday of weekII and numbers of orders returns on any given days as a % of total no. of orders delivered till previous days. Read the data carefully and answer the questions.

Orders Delivered and Return order

■ Orders Delivered ■ Return order
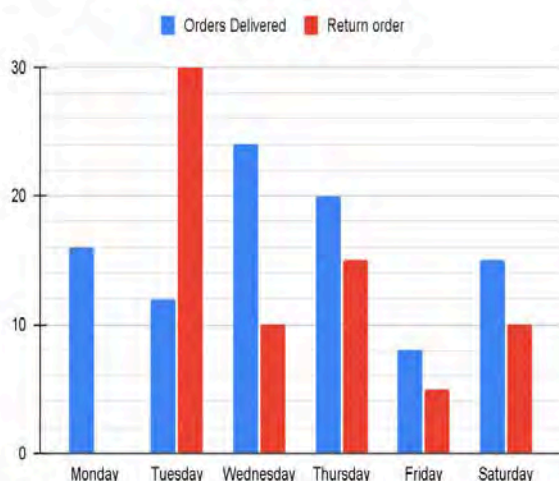
16. Note –

(i) Total order received on Sunday of Week II it will be delivered on next six days of week (Monday, Tuesday, Wednesday, Thursday, Friday & Saturday).

(ii) Remaining orders which did not delivered in these six days of week II are 50.

(iii) orders which received did not return on same day it has to be return next day of delivery. No orders are return on Sunday of week III

Q. Total returned orders on Saturday are what percent more or less than that of order returned on Wednesday?

(A) 239.28%   (B) 245%

(C) 36.25%   (D) 150%

(E) None of these

Q12 Direction : Bar graph shows percentage distribution of orders delivered in week III out of the orders received on sunday of weekII and numbers of orders returns on any given days as a % of total no. of orders delivered till previous days. Read the data carefully and answer the questions.

Orders Delivered and Return order

■ Orders Delivered ■ Return order
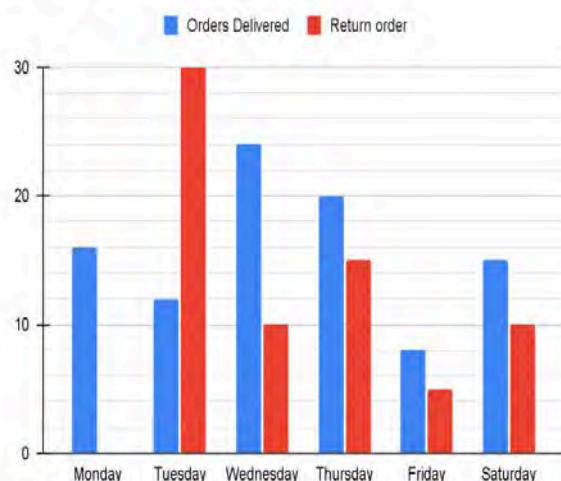
16. Note –

(i) Total order received on Sunday of Week II it will be delivered on next six days of week (Monday, Tuesday, Wednesday, Thursday, Friday & Saturday).

(ii) Remaining orders which did not delivered in these six days of week II are 50.

(iii) orders which received did not return on same day it has to be return next day of delivery. No orders are return on Sunday of week III

Q. If we are arranging returns orders in increasing order, then find the average of returned orders from Wednesday to Friday?

(A) 83.75   (B) 80

(C) 72.3   (D) 85

(E) None of these

Q13 Direction : Bar graph shows percentage distribution of orders delivered in week III out of the orders received on sunday of weekII and numbers of orders returns on any given days as a % of total no. of orders delivered till previous days. Read the data carefully and answer the questions.

Orders Delivered and Return order

■ Orders Delivered ■ Return order
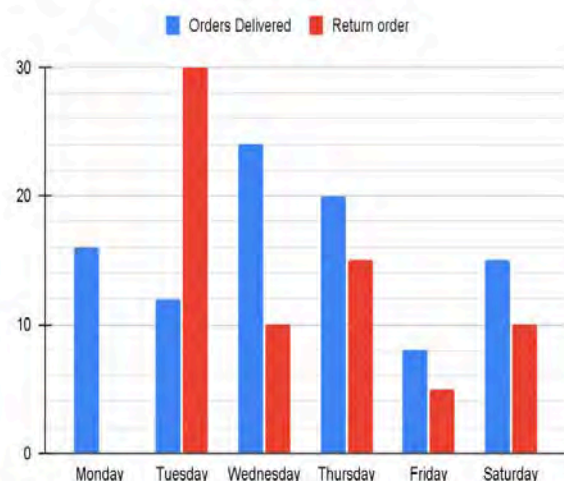
16. Note –

(i) Total order received on Sunday of Week II it will be delivered on next six days of week (Monday, Tuesday, Wednesday, Thursday, Friday & Saturday).

(ii) Remaining orders which did not delivered in these six days of week II are 50.

(iii) orders which received did not return on same day it has to be return next day of delivery. No orders are return on Sunday of week III

Q. Find sum of total number of orders delivered on Tuesday and total orders returned on Wednesday?

(A) 66   (B) 56

(C) 64   (D) 68

(E) None of these

Q14 Direction : Bar graph shows percentage distribution of orders delivered in week III out of the orders received on sunday of weekII and numbers of orders returns on any given days as a % of total no. of orders delivered till previous days. Read the data carefully and answer the questions.

Orders Delivered and Return order

■ Orders Delivered ■ Return order
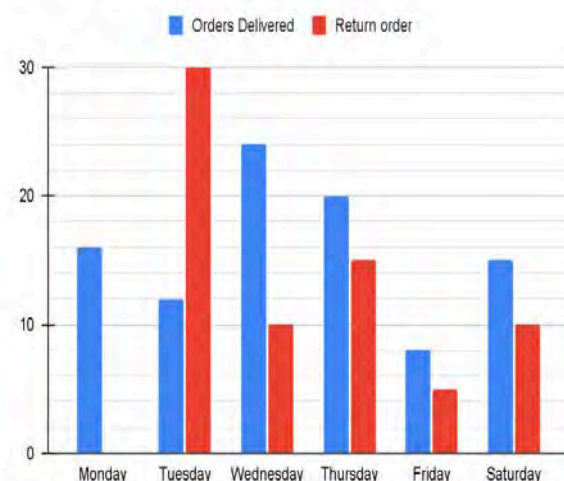
16. Note –

(i) Total order received on Sunday of Week II it will be delivered on next six days of week (Monday, Tuesday, Wednesday, Thursday, Friday & Saturday).

(ii) Remaining orders which did not delivered in these six days of week II are 50.

(iii) orders which received did not return on same day it has to be return next day of delivery. No orders are return on Sunday of week III

Q. If we interchange the delivered orders on Friday and Thursday, then find the difference between orders returned on Friday and Saturday now?

(A) 65   (B) 60

(C) 62   (D) 70

(E) None of these

Q15 Direction : Bar graph shows percentage distribution of orders delivered in week III out of the orders received on sunday of weekII and numbers of orders returns on any given days as a % of total no. of orders delivered till previous days. Read the data carefully and answer the questions.

Orders Delivered and Return order
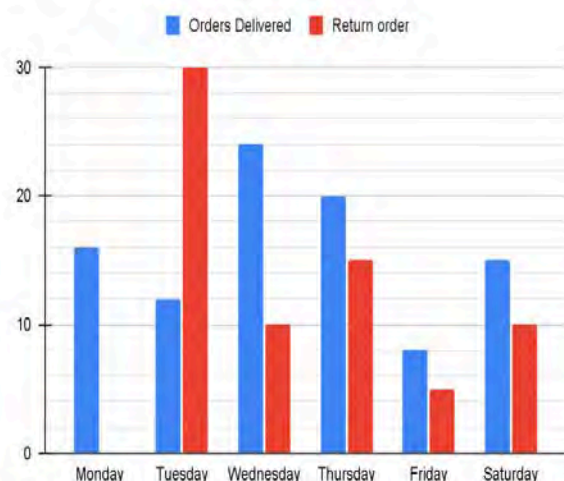
16. Note –

(i) Total order received on Sunday of Week II it will be delivered on next six days of week (Monday, Tuesday, Wednesday, Thursday, Friday & Saturday).

(ii) Remaining orders which did not delivered in these six days of week II are 50.

(iii) orders which received did not return on same day it has to be return next day of delivery. No orders are return on Sunday of week III

Q. Find total number of returned orders from Tuesday to Saturday?

(A) 360　　　　　　(B) 363
(C) 362　　　　　　(D) 365
(E) 369

Q16 Directions : Bar graph shows the number of fans produced (in hundreds) by a manufacturer in the period of four months i.e. from May to August.

Shopkeeper has to decide whether to test or not all the units of fans before sending them to the customer.If he has decided to test he has two options.

(a) Option I

(b) Option II

Option I:- It cost Rs 2.50 per unit as testing cost but this method of testing allows 30% of defective fans

to pass to the customer.

Option II:- It cost Rs 4 per unit as testing cost and it find 90% of defective units

→ All defective units identified at the customer end, will causes a penalty of Rs 60 per units. Which are to

be paid by shopkeeper. Defective units found during testing are repaired at Rs 20 per unit.

Q. In May, shopkeeper uses option II for testing the whole units of fans produced and he has to pay penalties of Rs 1620 to the customer. Then, find the total units of fans manufactured in that month if total defective units are 20 % in that month.

(A) 1350　　　　　　(B) 1050
(C) 1071　　　　　　(D) 1106
(E) 1120

Q17 Directions : Bar graph shows the number of fans produced (in hundreds) by a manufacturer in the period of four months i.e. from May to August.

Shopkeeper has to decide whether to test or not all the units of fans before sending them to the customer.If he has decided to test he has two options.

(a) Option I

(b) Option II

Option I:- It cost Rs 2.50 per unit as testing cost but this method of testing allows 30% of defective fans

to pass to the customer.

Option II:- It cost Rs 4 per unit as testing cost and it find 90% of defective units

→ All defective units identified at the customer end, will causes a penalty of Rs 60 per units. Which are to

be paid by shopkeeper. Defective units found during testing are repaired at Rs 20 per unit.

Q. Find ratio of all defective units of May to August months if in May he uses option I for testing and in August, option II as testing. Repairing cost of August is Rs 5300 more than that of May where as penalties for May is Rs 900 more than that of August?

(A) 3 : 8   (B) 2 : 5

(C) 11 : 18   (D) 4 : 9

(E) 8 : 15

Q18 Directions : Bar graph shows the number of fans produced (in hundreds) by a manufacturer in the period of four months i.e. from May to August.

Shopkeeper has to decide whether to test or not all the units of fans before sending them to the customer.If he has decided to test he has two options.

(a) Option I

(b) Option II

Option I:- It cost Rs 2.50 per unit as testing cost but this method of testing allows 30% of defective fans

to pass to the customer.

Option II:- It cost Rs 4 per unit as testing cost and it find 90% of defective units

→ All defective units identified at the customer end, will causes a penalty of Rs 60 per units. Which are to

be paid by shopkeeper. Defective units found during testing are repaired at Rs 20 per unit.

Shopkeeper uses option I testing in July month and incurs repairing cost of. Rs 5600. Then find number of defective fans in March is what percent of total manufactured fans in that month?

(A) $12\frac{2}{3}$ %

(B) 15%

(C) $16\frac{2}{3}$ %

(D) 17 %

(E) 20%

Answer Key

Level–1

Q1	(D)		Q24	(B)
Q2	(B)		Q25	(A)
Q3	(E)		Q26	(C)
Q4	(C)		Q27	(D)
Q5	(C)		Q28	(C)
Q6	(A)		Q29	(D)
Q7	(E)		Q30	(C)
Q8	(A)		Q31	(C)
Q9	(E)		Q32	(C)
Q10	(D)		Q33	(A)
Q11	(B)		Q34	(C)
Q12	(C)		Q35	(B)
Q13	(B)		Q36	(A)
Q14	(C)		Q37	(C)
Q15	(C)		Q38	(E)
Q16	(C)		Q39	(D)
Q17	(C)		Q40	(B)
Q18	(C)		Q41	(A)
Q19	(C)		Q42	(A)
Q20	(C)		Q43	(D)
Q21	(A)		Q44	(C)
Q22	(D)		Q45	(A)
Q23	(C)		Q46	(B)

Level–2

Q1	(D)		Q15	(B)
Q2	(A)		Q16	(A)
Q3	(E)		Q17	(C)
Q4	(A)		Q18	(B)
Q5	(C)		Q19	(E)
Q6	(D)		Q20	(A)
Q7	(D)		Q21	(A)
Q8	(A)		Q22	(D)
Q9	(B)		Q23	(C)
Q10	(B)		Q24	(C)
Q11	(A)		Q25	(E)
Q12	(C)		Q26	(D)
Q13	(C)		Q27	(B)
Q14	(C)		Q28	(E)

Level-3

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

Hints & Solutions

Level–1

Q1 **Text Solution:**

The income in1997 was equal to the expenditure in 1997 i.e., Rs. 40 lakhs.

Q2 **Text Solution:**

The profit is maximum in 1995.

Q3 **Text Solution:**

Profit in 1995 = 50 − 20 = 30 lakhs

Profit in 1996 = 40 − 30 = 10 lakhs

Difference in profit = 30 − 10 = 20 lakhs

Q4 **Text Solution:**

$$\text{Average income} = \frac{30+50+40+60+60}{5} = \frac{240}{5} = 48$$

Therefore in 1995, 1997 and 1998, the income is more than the average income.

Q5 **Text Solution:**

Expenditure in 1996 = 30 lakhs, Expenditure in 1997 = 40 lakhs

Required % = $\frac{40-30}{30} \times 100$

= 33.33%

≈33%

Q6 **Text Solution:**

Required percentage mark = $\frac{120}{70+110+100+120+60} \times 100$

$\frac{120}{460} \times 100 = 26.08\%$

Q7 **Text Solution:**

Required ratio = (100 + 120) : (130 + 120)

220 : 250 = 22:25

Q8 **Text Solution:**

Marks obtained by Atul in both subjects together is more than the marks obtained by Hera in Chemistry.

Q9 **Text Solution:**

New marks of Atul in physics = $\frac{114}{100} \times 50 = 57$

So, Atul's new percentage = $\frac{57}{140} \times 100 = 41$

Q10 **Text Solution:**

Required ratio = (130 + 70) : (50 +60)

= 200 : 110 = 20:11

Q11 **Text Solution:**

The graduate students studying from the institute Q are:

13% of 27300= 3549

The post graduate students from the institute Q are:

13% of 24700 = 3211

The ratio of the graduate and post graduate will be:

$\frac{3549}{3211}$

Q12 **Text Solution:**

Import in 1995-96=7000 Crore

Import in 1999-2000=14000 Crore

Required increase = $\frac{14000-7000}{7000} \times 100\%$

$= \frac{7000}{7000} \times 100\%$

= 100%

Q13 **Text Solution:**

Oil imports in 1997-98 $= \frac{20}{100} \times 13000 = 2600$ crore

Trade gap in 1997 - 98 = 13000 - 6500 = 6500

Hence, percent of trade gap due to oil = $\frac{2600}{6500} \times 100\%$

= 40%

Q14 **Text Solution:**

Average total residents in society Dixon in 2012 and 2022 = $\frac{400+480}{2} = 440$

Required % = $\frac{440-420}{440} \times 100 = 4\frac{6}{11}\%$

Q15 **Text Solution:**

Required difference = (350+370) − (300 + 400)= 20

Q16 **Text Solution:**

All residents in 2012 = 250+420+300+400 = 1370

Total residents in 2022 = 350+370+420+480 = 1620

Required ratio = 1370:1620

= 137:162

Q17 **Text Solution:**

Society Arya nagar = $\frac{350-250}{250} \times 100 = 40\%$

Society Balco = $\frac{370-420}{420} \times 100 = 11.9\%$ (decrease)

Society Criston = $\frac{420-300}{300} \times 100 = 40\%$

Society Dixon = $\frac{480-400}{400} \times 100 = 20\%$

Therefore, maximum increase in society Arya nagar and Criston.

Q18 Text Solution:

Required average = $\frac{250+370+420+400}{4}$ = 360

Q19 Text Solution:

Curved surface area of cylinder = $2\pi rh$

Where r is radius of the cylinder and h is the height of the cylinder.

Curved surface area of cylinder B

$= 2 \times \frac{22}{7} \times 8 \times 18 = 905.14 \ cm^2$

Curved surface area of cylinder D

$= 2 \times \frac{22}{7} \times 10 \times 26 = 754.28 \ cm^2$

Required ratio $= \frac{905.14}{754.20} = \frac{6}{5}$

Q20 Text Solution:

Average of three numbers $= \frac{\text{Sum of three numbers}}{3}$

Volume of cylinder A

$= \frac{22}{7} \times 12 \times 12 \times 16 = \frac{50688}{7} \ cm^3$

Volume of cylinder B

$= \frac{22}{7} \times 8 \times 8 \times 18 = \frac{25344}{7} \ cm^3$

Volume of cylinder C

$= \frac{22}{7} \times 6 \times 6 \times 14 = 1584 \ cm^3$

Sum of volumes of cylinders $= \frac{87100}{7} cm^3$

Average of volumes of cylinders A, B and C $= \frac{87100}{21} \ cm^3$

Q21 Text Solution:

Volume of cylinder $= \pi r^2 h \ cm^3$

Where r is the radius of the cylinder and h is the height of the cylinder.

Empty volume of cylinder D

$= \frac{100-45}{100} \times \frac{22}{7} \times 10 \times 10 \times 26$

$= 4494.28 \ cm^3$

Empty volume of cylinder E

$= \frac{100-75}{100} \times \frac{22}{7} \times 14 \times 14 \times 28 = 4312 \ cm^3$

Difference in empty volumes of cylinders $= 4494.28 - 4312 = 182.28 \ cm^3$

Q22   Text Solution:

Diameter of cylinder B $= 8 \times 2 = 16 \ cm$

Diameter of cylinder A $= 12 \times 2 = 24 \ cm$

Difference between diameter and height of cylinder B $= 18 - 16 = 2 \ cm$

Difference between diameter and height of cylinder A $= 24 - 16 = 8 \ cm$

Required percentage $= \frac{8-2}{8} \times 100 = 75\%$

Q23 Text Solution:

Volume of cylinder $= \pi r^2 h \ cm^3$

Where r is the radius of the cylinder and h is the height of the cylinder.

Volume of cube $= side^3 \ cm^3$

Number of cubes that can be placed in cylinder

$= \frac{\text{Volume\ of\ cylinder}}{\text{Volume\ of\ cube}}$

Number of cubes that cylinder A can contain

$= \frac{\frac{22}{7} \times 12 \times 12 \times 18}{3 \times 3 \times 3} = 301.5$

Number of cubes that cylinder B can contain

$= \frac{\frac{22}{7} \times 8 \times 8 \times 18}{3 \times 3 \times 3} = 134.01$

Difference of number of cubes $= 301.5 - 134.01 = 167$

Q24 Text Solution:

Shoes sold in Pune in 2019 and 2021 = 550 + 550 = 1100

Total number of shoes sold in 2018 = 300 + 700 + 925 + 475 + 600 = 3000

Required ratio = 1100 : 3000 = 11 : 30

Hence answer is 11: 30

Q25 Text Solution:

Number of shoe sales in 2019 from Kolkata and Odisha cities = 400 + 500 = 900

Number of shoes sales in 2021 from Pune, Rachi and Chennai Cities = 550 + 290 + 760 = 1600

Required ratio = 900 : 1600 = 9 : 16

Hence answer is 9: 16.

Q26 Text Solution:

The average number of shoes sales which sold in 2019 sessions from all the cities = $\frac{400+550+850+900+500}{5} = 640$

The average of the total number of shoes Sales from the rachi city = $\frac{925+850+235+290}{4} = 575$

Required difference = 640 - 575 = 65

Hence answer is 65.

Q27 Text Solution:

The total number of shoes sold from pune city = 700 + 550 + 1200 + 550 = 3000

The number of shoes sales from Chennai = 475 + 900 + 365 + 760 = 2500

Required % = $\frac{3000 - 2500}{2500} \times 100 = 20\%$ more

Hence answer is 20% more.

Q28 Text Solution:

Number of shoe sales in 2018 = 300 + 700 + 925 + 475 + 600 = 3000

Number of shoe sales in 2019 = 400 + 550 + 850 + 900 + 500 = 3200

Number of shoe sales in 2020 = 800 + 1200 + 235 + 365 + 900 = 3500

Number of shoe sales in 2021 = 250 + 550 + 290 + 760 + 350 = 2200

The number of shoe sales is the 2nd lowest in 2018.

Q29 Text Solution:

The total amount with shopkeeper D from 500 rupee notes = 32 × 500 = 16000

The total amount with shopkeeper B from 100 rupee notes = 76 × 100 = 7600

Required difference = 16000 - 7600 = Rs. 8400

Q30 Text Solution:

The number of 200 and 100 rupee notes with shopkeeper E = 18 + 66 = 84

The number of 500 rupee notes with shopkeepers B and C together = 8 + 22 = 30

Required ratio = 84 : 30 = 14 : 5

Q31 Text Solution:

The number of 200 rupee notes with shopkeeper B = $38 \times 200 = 7600$

The number of 500 rupee notes with shopkeepers A and E together = 12 + 14 = 26 $\times 500 = 13000$

Required % = $\frac{7600}{13000} \times 100 = 58.46\%$

Q32 Text Solution:

The average income of the given years = $\frac{30+50+40+60+60}{5}$ = 48 lakhs

There are 3 years (1983,1985,1986) in which the income is more than the average of given years.

Q33 Text Solution:

The profit in year 1982 = 30 -20 =10 lakhs

The profit in year 1986 = 60-35 = 25 lakhs

Increase in profit = 15 lakhs

Percentage increase in profit = $\frac{15 \times 100}{10}$ = 150%

Q34 Text Solution:

Profit in the year 1983 = 50-30 = 20lakhs

Profit in the year 1984 = 40-30 = 10lakhs

Difference = 10 lakhs

Q35 Text Solution:

Average income = $\frac{30+50+40+60+60}{5}$ = 48 lakhs

Total average profit = $\frac{(30-20)+(50-30)+(40-30)+(60-40)+(60-35)}{5}$ = 17 lakhs

Ratio = 48 : 17

Q36 Text Solution:

Total income = 30+50+40+60+60 = 240 lakhs

Total expenditure = 20+30+30+40+35 = 155 lakhs

Total income − total expenditure = 240-155 = 85 lakhs

Q37 Text Solution:

Number of people whose at least one loan approved in 2018 = 300 − 150 = 150

Number of people in 2018 who didn't get disbursement in first week = 150 × 40% = 60

Number of people in 2017 got disbursement in first week = 2 × 60 = 120

Number of people in 2017 who didn't get disbursement in first week = 360 − 120 = 240

Required % = $\frac{240}{400} \times 100$ = 60%

Q38 Text Solution:

Required average = $\frac{80 + 30 + 40 + 150 + 200}{5}$

= $\frac{500}{5}$

= 100

Q39 Text Solution:

Number of people whose loan is not approved in 2019 = 500 − 300 = 200

Number of people reapplied for loan in 2020 = 40% × 200 = 80

Number of people in 2020 whose at least one loan is approved = 6 × (400 − 360) = 240

Number of people reapplied in 2020 whose at least one loan is approved = 20% × 240 = 48

So, number of people those reapplied in 2020, whose loan is not approved = 80 − 48 = 32

Q40   Text Solution:

number of tickets sold by website 'B' on Tuesday=160

number of tickets sold by website 'A' on Thursday=240

ratio $=\frac{160}{240}$

$=\frac{2}{3}$

= 2:3

Q41   Text Solution:

Go-kart tickets at website 'A' is Rs. 100 per 6 tickets

6 tickets=100 Rs

1 tickets=$\frac{100}{6}$

wednesday(A)=180

180 tickets=$\frac{100}{6} \times 180 = 3000$

Go-kart tickets at website 'B' is Rs. 100 per 5 tickets

5 tickets= Rs 100

1 tickets=$\frac{100}{5}$

wednesday(B)=200

200 tickets=$\frac{100}{5} \times 200$

=4000

difference between revenue generated by both websites on Wednesday by selling Go-kart tickets

=4000-3000

=1000

Q42   Text Solution:

the average number of tickets sold by website 'B' on Monday, Wednesday and Thursday

$=\frac{180+200+280}{3}$

=220

Q43   Text Solution:

total number of Go-kart tickets sold by given two websites together on Thursday

=240+280

=520

total number of Go-kart tickets sold by given two websites together on sunday

$=520 \times \frac{140}{100}$

=728

Q44   Text Solution:

the number of tickets sold by website 'A' on Monday and Wednesday together

=120+180

=300

Q45   Text Solution:

Let total number of violet flags in the basket C = a

So, total number of orange flags in the basket C = a + 2

And, (a + 2) will be maximum when yellow flags in the basket C is 1

So, a + (a + 2) = 15 − 1

a = 6

So, orange flags in basket C = 8

Three flags are taken out from the basket C and for probability such that maximum orange flags are left in the basket C, there will be two cases. First, all three flags taken out are of violet color and second, two violet and one yellow color flag is taken out.

So Required Probability

$\frac{8}{15-3}$ = $\frac{2}{3}$

Q46   Text Solution:

Flags :

Let total number of violet in basket B be 'a'

Then total number of orange in basket B will be either (a-4) or (a+4)

According to the question:

$\left(\frac{a}{18}\right) = \left(\frac{2}{3}\right)$

a = 4

Hence, orange in basket B will be either 0 or 8.

Since number of orange cannot be 0

So, number of violet are 4 and number of orange are 8

Number of yellow = 18 – (4 + 8) = 6

Required Ratio= $\frac{6}{8}$ = 3:4

Level–2

Q1 Text Solution:

Let total number of violet flags in A = 6x

Then, total number of orange flags in A

= 6x + 2

Let total number of violet flags in basket C

= 5x

Then, total number of orange flags in basket

C= 5x + 2

$$\left(\frac{6x-2}{18}\right) - \left(\frac{(5x+2)(5x+1)}{15\times14}\right) = \left(\frac{11}{45}\right)$$

$$\left(\frac{3x+1}{9}\right) - \left(\frac{125x^2+15x+2}{15}\right) = \left(\frac{11}{45}\right)$$

Yellow flags in A

= 18 − (6 × 1 + 6 × 1 + 2)

= 4

Yellow flags in C

= 15 − (5 × 1 + 5 × 1 + 2) = 3

Required sum = 4 + 3 = 7

Q2 Text Solution:

Common Solution:

Let the positions be: 1st > 2nd > 3rd > 4th > 5th

Since, B finished the race just before E:

So,

Case I: B > E > 3rd > 4th > 5th

Case II: 1st > B > E > 4th > 5th

Case III: 1st > 2nd > B > E > 5th

Case IV: 1st > 2nd > 3rd > B > E

Since, only two persons finished the race between B and C, who didn't finish the race after E.

So, cases I, II and III can be neglected.

And the only possible case: C > 2nd > 3rd > B > E

Since, only 1 person finished the race between A and E.

So, the real positions of A, B, C, D and E, at which they finished the race: C > D > A > B > E

C finished the race at 1st position, D finished the race at 2nd position, A finished the race at 3rd position, B finished the race at 4th position and E finished the race at 5th position.

Person	Time taken to complete 1st 100 meters (in seconds)	Total time taken to complete the race (in seconds)	Time taken to complete remaining 100 meters In seconds)
A	13	29	16
B	16	30	14
C	10	25	15
D	18	28	10
E	15	32	17

Time taken by B to complete the remaining 100 meters = 14 seconds

Time taken by C to complete the remaining 100 meters = 15 seconds

Time taken by D to complete the remaining 100 meters = 10 seconds

Required average = $\frac{14+15+10}{3}$ = 13 seconds

Q3 Text Solution:

Common Solution:

Let the positions be: 1st > 2nd > 3rd > 4th > 5th

Since, B finished the race just before E:

So,

Case I: B > E > 3rd > 4th > 5th

Case II: 1st > B > E > 4th > 5th

Case III: 1st > 2nd > B > E > 5th

Case IV: 1st > 2nd > 3rd > B > E

Since, only two persons finished the race between B and C, who didn't finish the race after E.

So, cases I, II and III can be neglected.

And the only possible case: C > 2nd > 3rd > B > E

Since, only 1 person finished the race between A and E.

So, the real positions of A, B, C, D and E, at which they finished the race: C > D > A > B > E

C finished the race at 1st position, D finished the race at 2nd position, A finished the race at 3rd position, B finished the race at 4th position and E finished the race at 5th position.

Person	Time taken to complete 1st 100 meters (in seconds)	Total time taken to complete the race (in seconds)	Time taken to complete remaining 100 meters In seconds)
A	13	29	16
B	16	30	14
C	10	25	15
D	18	28	10
E	15	32	17

Time taken by A to complete the remaining 100 meters = 16 seconds

Time taken by B to complete the remaining 100 meters = 14 seconds

Time taken by C to complete the remaining 100 meters = 15 seconds

Time taken by D to complete the remaining 100 meters = 10 seconds

Time taken by E to complete the remaining 100 meters = 17 seconds

So, time taken by E to complete the remaining 100 meters is maximum.

Q4 Text Solution:

Common Solution:

Let the positions be: 1st > 2nd > 3rd > 4th > 5th

Since, B finished the race just before E:

So,

Case I: B > E > 3rd > 4th > 5th

Case II: 1st > B > E > 4th > 5th

Case III: 1st > 2nd > B > E > 5th

Case IV: 1st > 2nd > 3rd > B > E

Since, only two persons finished the race between B and C, who didn't finish the race after E.

So, cases I, II and III can be neglected.

And the only possible case: C > 2nd > 3rd > B > E

Since, only 1 person finished the race between A and E.

So, the real positions of A, B, C, D and E, at which they finished the race: C > D > A > B > E

C finished the race at 1st position, D finished the race at 2nd position, A finished the race at 3rd

position, B finished the race at 4th position and E finished the race at 5th position.

Person	Time taken to complete 1st 100 meters (in seconds)	Total time taken to complete the race (in seconds)	Time taken to complete remaining 100 meters In seconds)
A	13	29	16
B	16	30	14
C	10	25	15
D	18	28	10
E	15	32	17

Total time taken by A to finish the race = 29 seconds

Total time taken by C to finish the race = 25 seconds

Required percentage = $\frac{29-25}{25} \times 100$ = 16%

Q5 Text Solution:

Common Solution:

Let the positions be: 1st > 2nd > 3rd > 4th > 5th

Since, B finished the race just before E:

So,

Case I: B > E > 3rd > 4th > 5th

Case II: 1st > B > E > 4th > 5th

Case III: 1st > 2nd > B > E > 5th

Case IV: 1st > 2nd > 3rd > B > E

Since, only two persons finished the race between B and C, who didn't finish the race after E.

So, cases I, II and III can be neglected.

And the only possible case: C > 2nd > 3rd > B > E

Since, only 1 person finished the race between A and E.

So, the real positions of A, B, C, D and E, at which they finished the race: C > D > A > B > E

C finished the race at 1st position, D finished the race at 2nd position, A finished the race at 3rd position, B finished the race at 4th position and E finished the race at 5th position.

Person	Time taken to complete 1st 100 meters (in seconds)	Total time taken to complete the race (in seconds)	Time taken to complete remaining 100 meters In seconds)
A	13	29	16
B	16	30	14
C	10	25	15
D	18	28	10
E	15	32	17

Total time taken by C to finish the race = 25 seconds

Since, E finished the race at 5th position.

So, total time taken by E to finish the race = 32 seconds

Required difference = 32 – 25 = 7 seconds

Q6 Text Solution:

Common Solution:

Let the positions be: 1st > 2nd > 3rd > 4th > 5th

Since, B finished the race just before E:

So,

Case I: B > E > 3rd > 4th > 5th

Case II: 1st > B > E > 4th > 5th

Case III: 1st > 2nd > B > E > 5th

Case IV: 1st > 2nd > 3rd > B > E

Since, only two persons finished the race between B and C, who didn't finish the race after E.

So, cases I, II and III can be neglected.

And the only possible case: C > 2nd > 3rd > B > E

Since, only 1 person finished the race between A and E.

So, the real positions of A, B, C, D and E, at which they finished the race: C > D > A > B > E

C finished the race at 1st position, D finished the race at 2nd position, A finished the race at 3rd position, B finished the race at 4th position and E finished the race at 5th position.

Person	Time taken to complete 1st 100 meters (in seconds)	Total time taken to complete the race (in seconds)	Time taken to complete remaining 100 meters In seconds)
A	13	29	16
B	16	30	14
C	10	25	15
D	18	28	10
E	15	32	17

Time taken by D and E together to complete the 1st 100 meters = 18 + 15 = 33 seconds

Time taken by D and E together to complete the remaining 100 meters = 10 + 17 = 27 seconds

Required ratio = 33: 27 = 11: 9

Q7 Text Solution:

Common Solution:

Let the number of persons, who joined company A and company B in 2011, are '2x' and 'y' respectively.

So, number of persons, who joined company A in 2013 = 50% of 2x = x

And number of persons, who joined company B in 2013 = 100% of y = y

Since, total number of persons, who joined company A and company B in 2011, is 35.

So,

2x + y = 35 –––––––––––(1)

Since, total number of persons, who joined company A and company B in 2011, is 10 more than those, who joined company A and company B in 2013.

So,

x + y = 35 – 10

x + y = 25 –––––––––––(2)

From equations (1) and (2):

2x – 35 = x – 25

x = 10

From equation (1):

20 + y = 35

y = 15

Year	No. of persons joined company A	No. of persons joined company B
2011	2 × 10 = 20	15
2012	65% of 20 = 13	80% of 15 = 12
2013	50% of 20 = 10	100% of 15 = 15
2014	85% of 20 = 17	40% of 15 = 6
2015	70% of 20 = 14	60% of 15 = 9

Number of employees in company A before 2011 = 120

Total number of persons, who joined company A from 2011 to 2014 = 20 + 13 + 10 + 17 = 60

Number of employees, who left company A till the end of 2014 = 30

So, number of employees in company A till the end of 2014 = 120 + 60 – 30 = 150

Required percentage = $\frac{150-120}{120} \times 100$ = 25%

Q8 Text Solution:

Common Solution:

Let the number of persons, who joined company A and company B in 2011, are '2x' and 'y' respectively.

So, number of persons, who joined company A in 2013 = 50% of 2x = x

And number of persons, who joined company B in 2013 = 100% of y = y

Since, total number of persons, who joined company A and company B in 2011, is 35.

So,

2x + y = 35 ———————(1)

Since, total number of persons, who joined company A and company B in 2011, is 10 more than those, who joined company A and company B in 2013.

So,

x + y = 35 – 10

x + y = 25 ———————(2)

From equations (1) and (2):

2x – 35 = x – 25

x = 10

From equation (1):

20 + y = 35

y = 15

Year	No. of persons joined company A	No. of persons joined company B
2011	2 × 10 = 20	15
2012	65% of 20 = 13	80% of 15 = 12
2013	50% of 20 = 10	100% of 15 = 15
2014	85% of 20 = 17	40% of 15 = 6
2015	70% of 20 = 14	60% of 15 = 9

Total number of persons, who joined company A in 2012, 2013 and 2014 together = 13 + 10 + 17 = 40

Total number of persons, who joined company B in 2012, 2013 and 2014 together = 12 + 15 + 6 = 33

Required percentage = $\frac{33}{40} \times 100$ = 82.5%

Q9 Text Solution:

Common Solution:

Let the number of persons, who joined company A and company B in 2011, are '2x' and 'y' respectively.

So, number of persons, who joined company A in 2013 = 50% of 2x = x

And number of persons, who joined company B in 2013 = 100% of y = y

Since, total number of persons, who joined company A and company B in 2011, is 35.

So,

2x + y = 35 ———————(1)

Since, total number of persons, who joined company A and company B in 2011, is 10 more than those, who joined company A and company B in 2013.

So,

x + y = 35 – 10

x + y = 25 –––––––––(2)

From equations (1) and (2):

2x – 35 = x – 25

x = 10

From equation (1):

20 + y = 35

y = 15

Year	No. of persons joined company A	No. of persons joined company B
2011	2 × 10 = 20	15
2012	65% of 20 = 13	80% of 15 = 12
2013	50% of 20 = 10	100% of 15 = 15
2014	85% of 20 = 17	40% of 15 = 6
2015	70% of 20 = 14	60% of 15 = 9

Total number of persons, who joined company A in all the 5 years together = 20 + 13 + 10 + 17 + 14 = 74

Total number of persons, who joined company B in all the 5 years together = 15 + 12 + 15 + 6 + 9 = 57

Required difference = 74 – 57 = 17

Q10 Text Solution:

Common Solution:

Let the number of persons, who joined company A and company B in 2011, are '2x' and 'y' respectively.

So, number of persons, who joined company A in 2013 = 50% of 2x = x

And number of persons, who joined company B in 2013 = 100% of y = y

Since, total number of persons, who joined company A and company B in 2011, is 35.

So,

2x + y = 35 –––––––––(1)

Since, total number of persons, who joined company A and company B in 2011, is 10 more than those, who joined company A and company B in 2013.

So,

x + y = 35 – 10

x + y = 25 –––––––––(2)

From equations (1) and (2):

2x – 35 = x – 25

x = 10

From equation (1):

20 + y = 35

y = 15

Year	No. of persons joined company A	No. of persons joined company B
2011	2 × 10 = 20	15
2012	65% of 20 = 13	80% of 15 = 12
2013	50% of 20 = 10	100% of 15 = 15
2014	85% of 20 = 17	40% of 15 = 6
2015	70% of 20 = 14	60% of 15 = 9

Since, number of persons, who joined company B in 2013 = 15

So, number of persons, who joined company C in 2013 = 80% of 15 = 12

Since, number of persons, who joined company B in 2015 = 9

So, number of persons, who joined company C in 2015 = $166\frac{2}{3}$% of 9 = 15

Total number of persons, who joined company C in 2013 and 2015 together = 12 + 15 = 27

Total number of persons, who joined company A in 2013 and 2015 together = 10 + 14 = 24

Required ratio = 24: 27 = 8: 9

Q11 Text Solution:

Common Solution:

Let the number of persons, who joined company A and company B in 2011, are '2x' and 'y' respectively.

So, number of persons, who joined company A in 2013 = 50% of 2x = x

And number of persons, who joined company B in 2013 = 100% of y = y

Since, total number of persons, who joined company A and company B in 2011, is 35.

So,

2x + y = 35 –––––––––(1)

Since, total number of persons, who joined company A and company B in 2011, is 10 more than those, who joined company A and company B in 2013.

So,

x + y = 35 – 10

x + y = 25 –––––––––(2)

From equations (1) and (2):

2x – 35 = x – 25

x = 10

From equation (1):

20 + y = 35

y = 15

Year	No. of persons joined company A	No. of persons joined company B
2011	2 × 10 = 20	15
2012	65% of 20 = 13	80% of 15 = 12
2013	50% of 20 = 10	100% of 15 = 15
2014	85% of 20 = 17	40% of 15 = 6
2015	70% of 20 = 14	60% of 15 = 9

Number of persons, who joined company A in 2015 = 14

So, number of males, who joined company A in 2015 = $14 \times \frac{5}{7} = 10$

And number of females, who joined company A in 2015 = 14 – 10 = 4

Number of persons, who joined company B in 2015 = 9

So, number of males, who joined company B in 2015 = $9 \times \frac{1}{3} = 3$

And number of females, who joined company B in 2015 = 9 – 3 = 6

Required difference = (10 + 3) – (4 + 6) = 3

Q12 Text Solution:

The total number of employees hired in the year 2017 by all three companies together was $= 60 + 75 + 45 = 180$ thousand

The total number of employees hired in year 2019 was $= 85 + 40 + 50 = 175$ thousand

The required percentage is: $\frac{(180 - 175) \times 100}{175} = \frac{5 \times 100}{175}$

$= \frac{20}{7} = 2\frac{6}{7} \%$

Q13 Text Solution:

The total number of employees hired by company C over all five years was $= 18 + 75 + 40 + 20 + 15 = 168$ thousand

The sum of the employees hired by company C in the years 2016 and 2020 together is $= 18 + 15 = 33$ thousand

The number of employees hired by the company in all other years together $= 168 - 33 = 135$ thousand

So, the required percentage $= \frac{33 \times 100}{135} =$ **24.44%**

Q14 Text Solution:

The total number of employees that company B has hired over the period of all the years $= 16 + 60 + 85 + 35 + 10.5$

$= 206.5$ thousand

The total number of employees that company D has hired over the period of all the years $= 17 + 45 + 50 + 42 + 28$

$= 182$ thousand

The following is the required average difference:

$= \frac{206.5}{5} - \frac{182}{5} = \frac{206.5 - 182}{5} = \frac{24.5}{5} =$ **4.9 thousand.**

Q15 Text Solution:

Total number of employees hired in the company B in 2018 = 85 thousand

Number of female employees hired by company B $= 40\% \ of \ 85$

$= 34$ thousand

Total number of employees hired by all three companies together in 2018 $= 85 + 40 + 50 = 175$ thousand

Number of male employees $= 60\% \, of \, 175 =$ 105 thousand

Total number of males in company B = 85 – 34 = 51 thousand

Total number of male employees in companies C and D together

$= 105 - 51 = 54$ thousand

Therefore, Total number of female employees in companies C and D together

$= (40 + 50) - 54 = \textbf{36 thousand}$.

Q16. Text Solution:

Common Solution:

Let total distance covered by Bus, Train, Car, Bike, and Ship is '10x', '40x', '15x', '22.5x', and '12.5x' respectively.

Speed of Bus = 10x × $\frac{60}{25}$ =24x

Speed of Train = 40x × $\frac{60}{60}$ =40x

According to the question:

40x – 24x = 32

16x = 32

x = 2

Distance covered by Bus =10x =20 km

Distance covered by Train = 40x = 80 km

Distance covered by Car = 15x = 30 km

Distance covered by Bike = 22.5x = 45 km

Distance covered by Ship = 12.5x = 25 km

Speed of Bus = 24x = 48 km/h

Speed of Train = 40x = 80 km/h

Speed of Car = 30×$\frac{60}{15}$ =120 km/h

Speed of Bike = 45×$\frac{60}{45}$ = 60 km/h

Speed of Ship = 25×$\frac{60}{50}$ = 30 km/h

Vehicles	Speed (km/h)	Distance covered (km)	Time taken (in min)
Bus	48	20	25
Train	80	80	60
Car	120	30	15
Bike	60	45	45
Ship	30	25	50

Actual time taken for the journey = 25 + 60 + 15 + 45 + 50 = 195 min

Total distance of the journey (except that covered by ship) = 20 + 80 + 30 + 45 = 175 km

Total time taken by bus to cover 175 km = $\frac{175}{48}$ × 60 = 218.75 min

Required difference = (218.75 + 50) – 195 = 73.75 min = 73 min 45 seconds

Q17. Text Solution:

After common solution:

Vehicles	Speed (km/h)	Distance covered (km)	Time taken (in min)
Bus	48	20	25
Train	80	80	60
Car	120	30	15
Bike	60	45	45
Ship	30	25	50

Less time taken by Train to cover its part of journey with increased speed = $60 - \frac{80}{80+10} \times 60 = \frac{20}{3}$ min

Now, time taken by bike must be increased by $\frac{20}{3}$ min in order to complete the journey in actual time.

Increased time taken by bike = $45 + \frac{20}{3} = \frac{155}{3}$ min

New speed of the bike = $\frac{45}{\frac{155}{3}} \times 60 = \frac{1620}{31}$ km/h

Required percent = $\frac{60 - \frac{1620}{31}}{60} \times 100 = 12.9\%$

Q18. Text Solution:

After common solution:

Vehicles	Speed (km/h)	Distance covered (km)	Time taken (in min)
Bus	48	20	25
Train	80	80	60
Car	120	30	15
Bike	60	45	45
Ship	30	25	50

Let speed of stream = 'a' km/h

Downstream speed of ship = 30 + a + a = (30 + 2a)

According to the question:

$\frac{25}{30+2a} \times 60 = 50 - 12.5$

$\frac{25}{30+2a} \times 60 = 37.5$

30 + 2a = 40

a = 5

Hence, speed of stream = 5 km/h

Q19. Text Solution:

After common solution:

Vehicles	Speed (km/h)	Distance covered (km)	Time taken (in min)
Bus	48	20	25
Train	80	80	60
Car	120	30	15
Bike	60	45	45
Ship	30	25	50

Total distance covered = 20 + 80 + 30 + 45 + 25 = 200 km

Total time taken = 25 + 60 + 15 + 45 + 50 = 195 min

Required average speed = $\frac{200}{195} \times 60$ = 61.5 km/h

Q20. Text Solution:

After common solution:

Vehicles	Speed (km/h)	Distance covered (km)	Time taken (in min)
Bus	48	20	25
Train	80	80	60
Car	120	30	15
Bike	60	45	45
Ship	30	25	50

Total distance = 200 km

Required time taken = $\frac{100}{80} + \frac{100}{48} = \left(\frac{15}{12} + \frac{25}{12}\right) \times 60$ = 200 min = 3 hours 20 min

Q21. Text Solution:

Total runs scored,

=2600 + 1070 + 5350 + 7215 + 2400 + 1440 + 2110 + 1840 + 1900 + 3880 + 3315

=33,120

Now, 10% of the total runs =3312

Except for Saurav, Jadeja, Shikhar, and Raina, all the players satisfy the conditions given in the question.

Thus, 11−4=7 players of the given players had a contribution of less than 10% in the total runs scored by all these given players in their careers.

Q22. Text Solution:

Runs scored by Rahul = 1440

Runs scored by Virat =1070

Difference =1400 − 1070 =330

Required percentage $= \frac{330}{1070} \times 100 \approx 31\%$

Q23. Text Solution:

The required percentage $= \frac{3740}{33120} \times 100 = 11.29\%$

Q24. Text Solution:

Since the average $\frac{33120}{11} = 3010.9$

So the number of batsmen who scored more than that is 4 and less than that is 7. So required ratio is 4: 7.

Q25 Text Solution:

Common Solution:

Let speed of persons P, Q, R, S, and T is 'p', 'q', 'r', 's', and 't' km/h respectively.

According to the question:

$40 = (p+10) \times \frac{96}{60}$

$p = 15$

$40 = (q+10) \times \frac{60}{60}$

$q = 30$

$40 = (r+10) \times \frac{48}{60}$

$r = 40$

$40 = (s+10) \times \frac{80}{60}$

$s = 20$

$40 = (t+10) \times \frac{40}{60}$

$t = 50$

Person	Speed (km/h)
P	15
Q	30
R	40
S	20
T	50

The gap between S and T will be covered by T while chasing S in 48 min.

Relative speed of T with respect to S = 50 – 20 = 30 km/h

Hence, distance between S and T = $48 \times \frac{30}{60}$ = 24 km

According to the question:

t = $\frac{24}{20}$ × 60

t = 72 min

Q26 Text Solution:

Common Solution:

Let speed of persons P, Q, R, S, and T is 'p', 'q', 'r', 's', and 't' km/h respectively.

According to the question:

$40 = (p + 10) \times \frac{96}{60}$

$p = 15$

$40 = (q + 10) \times \frac{60}{60}$

$q = 30$

$40 = (r + 10) \times \frac{48}{60}$

$r = 40$

$40 = (s + 10) \times \frac{80}{60}$

$s = 20$

$40 = (t + 10) \times \frac{40}{60}$

$t = 50$

Person	Speed (km/h)
P	15
Q	30
R	40
S	20
T	50

Relative speed of P and Q when traveling towards each other = 15 + 30 = 45 km/h

Required time taken = $\frac{27}{45} \times 60$ = 36 min

Q27 Text Solution:

Common Solution:

Let speed of persons P, Q, R, S, and T is 'p', 'q', 'r', 's', and 't' km/h respectively.

According to the question:

$40 = (p + 10) \times \frac{96}{60}$

$p = 15$

$40 = (q + 10) \times \frac{60}{60}$

$q = 30$

$40 = (r + 10) \times \frac{48}{60}$

$r = 40$

$40 = (s + 10) \times \frac{80}{60}$

$s = 20$

$40 = (t + 10) \times \frac{40}{60}$

$t = 50$

Person	Speed (km/h)
P	15
Q	30
R	40
S	20
T	50

Actual time taken to cover 36 km by Q = $\frac{36}{30} \times 60$ = 72 min

Decreased speed = 90% of 30 = 27 km/h

New time taken to cover 36 km = $\frac{36}{27}$ × 60 = 80 min

Required difference = 80 – 72 = 8 min

Q28 Text Solution:

Common Solution:

Let speed of persons P, Q, R, S, and T is 'p', 'q', 'r', 's', and 't' km/h respectively.

According to the question:

$$40 = (p + 10) \times \frac{96}{60}$$
$$p = 15$$
$$40 = (q + 10) \times \frac{60}{60}$$
$$q = 30$$
$$40 = (r + 10) \times \frac{48}{60}$$
$$r = 40$$
$$40 = (s + 10) \times \frac{80}{60}$$
$$s = 20$$
$$40 = (t + 10) \times \frac{40}{60}$$
$$t = 50$$

Person	Speed (km/h)
P	15
Q	30
R	40
S	20
T	50

Total distance covered by person S = 20 × 3.2 = 64 km

Level-3

Q1 Text Solution:

Marriage party A:

Total number of persons = 300

Number of persons from bride's side = 40% of 300 = 120

Number of persons from groom's side = 300 – 120 = 180

Marriage party B:

Total number of persons = 240

Number of persons from bride's side = 60% of 240 = 144

Number of persons from groom's side = 240 – 144 = 96

Marriage party C:

Total number of persons = 280

Number of persons from bride's side = 70% of 280 = 196

Number of persons from groom's side = 280 – 196 = 84

Marriage party D:

Total number of persons = 200

Number of persons from bride's side = 30% of 200 = 60

Number of persons from groom's side = 200 – 60 = 140

Marriage party E:

Total number of persons = 320

Number of persons from bride's side = 50% of 320 = 160

Number of persons from groom's side = 320 – 160 = 160

Marriage party E:

Total number of persons = 320

Number of persons from bride's side = 50% of 320 = 160

Number of persons from groom's side = 320 – 160 = 160

Total number of males = 62.5% of 160 + 50% of 160 = 100 + 80 = 180

Total number of females = 320 – 180 = 140

Required ratio = 180: 140 = 9: 7

Q2 Text Solution:

Marriage party A:

Total number of persons = 300

Number of persons from bride's side = 40% of 300 = 120

Number of persons from groom's side = 300 – 120 = 180

Marriage party B:

Total number of persons = 240

Number of persons from bride's side = 60% of 240 = 144

Number of persons from groom's side = 240 – 144 = 96

Marriage party C:

Total number of persons = 280

Number of persons from bride's side = 70% of 280 = 196

Number of persons from groom's side = 280 – 196 = 84

Marriage party D:

Total number of persons = 200

Number of persons from bride's side = 30% of 200 = 60

Number of persons from groom's side = 200 – 60 = 140

Marriage party E:

Total number of persons = 320

Number of persons from bride's side = 50% of 320 = 160

Number of persons from groom's side = 320 – 160 = 160

Marriage party A:

Total number of persons = 300

Number of persons from bride's side = 40% of 300 = 120

Number of persons from groom's side = 300 – 120 = 180

Marriage party B:

Total number of persons = 240

Number of persons from bride's side = 60% of 240 = 144

Number of persons from groom's side = 240 − 144 = 96

Number of males from groom's side in marriage party A = (100 – 45)% of 180 = 99

Number of males from groom's side in marriage party B = (100 – 25)% of 96 = 72

Required ratio = 99: 72 = 11: 8

Q3 Text Solution:

Marriage party A:

Total number of persons = 300

Number of persons from bride's side = 40% of 300 = 120

Number of persons from groom's side = 300 − 120 = 180

Marriage party B:

Total number of persons = 240

Number of persons from bride's side = 60% of 240 = 144

Number of persons from groom's side = 240 − 144 = 96

Marriage party C:

Total number of persons = 280

Number of persons from bride's side = 70% of 280 = 196

Number of persons from groom's side = 280 − 196 = 84

Marriage party D:

Total number of persons = 200

Number of persons from bride's side = 30% of 200 = 60

Number of persons from groom's side = 200 − 60 = 140

Marriage party E:

Total number of persons = 320

Number of persons from bride's side = 50% of 320 = 160

Number of persons from groom's side = 320 − 160 = 160

Total number of persons from bride's side in all the 5 marriage parties together = 120 + 144 + 196 + 60 + 160 = 680

Total number of persons from groom's side in all the 5 marriage parties together = 180 + 96 + 84 + 140 + 160 = 660

Required difference = 680 − 660 = 20

Q4 Text Solution:

Marriage party A:

Total number of persons = 300

Number of persons from bride's side = 40% of 300 = 120

Number of persons from groom's side = 300 − 120 = 180

Marriage party B:

Total number of persons = 240

Number of persons from bride's side = 60% of 240 = 144

Number of persons from groom's side = 240 − 144 = 96

Marriage party C:

Total number of persons = 280

Number of persons from bride's side = 70% of 280 = 196

Number of persons from groom's side = 280 − 196 = 84

Marriage party D:

Total number of persons = 200

Number of persons from bride's side = 30% of 200 = 60

Number of persons from groom's side = 200 − 60 = 140

Marriage party E:

Total number of persons = 320

Number of persons from bride's side = 50% of 320 = 160

Number of persons from groom's side = 320 − 160 = 160

Marriage party B:

Total number of persons = 240

Number of persons from bride's side = 60% of 240 = 144

Number of persons from groom's side = 240 − 144 = 96

Marriage party C:

Total number of persons = 280

Number of persons from bride's side = 70% of 280 = 196

Number of persons from groom's side = 280 – 196 = 84

Total number of persons from groom's side in marriage parties B and C together = 96 + 84 = 180

Total number of persons from bride's side in marriage parties B and C together = 144 + 196 = 340

Required percentage = $\frac{180}{340} \times 100 = 53\%$ (approximately)

Q5 Text Solution:
Marriage party A:
Total number of persons = 300
Number of persons from bride's side = 40% of 300 = 120
Number of persons from groom's side = 300 – 120 = 180
Marriage party B:
Total number of persons = 240
Number of persons from bride's side = 60% of 240 = 144
Number of persons from groom's side = 240 – 144 = 96
Marriage party C:
Total number of persons = 280
Number of persons from bride's side = 70% of 280 = 196
Number of persons from groom's side = 280 – 196 = 84
Marriage party D:
Total number of persons = 200
Number of persons from bride's side = 30% of 200 = 60
Number of persons from groom's side = 200 – 60 = 140
Marriage party E:
Total number of persons = 320
Number of persons from bride's side = 50% of 320 = 160
Number of persons from groom's side = 320 – 160 = 160
Marriage party C:
Total number of persons = 280

Number of persons from bride's side = 70% of 280 = 196

Number of persons from groom's side = 280 – 196 = 84

Marriage party E:
Total number of persons = 320
Number of persons from bride's side = 50% of 320 = 160
Number of persons from groom's side = 320 – 160 = 160
Total number of persons in marriage parties C and E together = 280 + 320 = 600
Total number of persons from groom's side in marriage parties C and E together = 84 + 160 = 244
Required percentage = $\frac{244}{600} \times 100 = 40.67\%$

Q6 Text Solution:
The number of red pens Sold on Thursday = 6y – 30 = 150
So, y = 30
Number of Blue pens sold Tuesday = 2x + 20 = 120
So, x = 50
Number of green pens sold on Monday = 3z + 70 = 280
So, z = 70
Total green pens sold on Friday = 3z = 210
The number of red pens sold on Thursday = 6y – 30 = 150
Required ratio = 210 : 150 = 7 : 5

Q7 Text Solution:
The number of red pens Sold on Thursday = 6y – 30 = 150
So, y = 30
Number of Blue pens sold Tuesday = 2x + 20 = 120
So, x = 50
Number of green pens sold on Monday = 3z + 70 = 280
So, z = 70
On Monday, the ratio of the total number of black and blue pens sold is 7:5

If 5 = 5x then 7 = 7x

The average number of black, red, blue and green Pens sold = $\frac{7x + 5x + 120 + (3z + 70)}{4}$

Put values of x and z

The average number of black, red, blue and green Pens sold = $\frac{1000}{4} = 250$

Q8   Text Solution:

The number of red pens Sold on Thursday = 6y – 30 = 150

So, y = 30

Number of Blue pens sold Tuesday = 2x + 20 = 120

So, x = 50

Number of green pens sold on Monday = 3z + 70 = 280

So, z = 70

The total number of red, blue and green pens sold on Thursday = (6y-30) + (4x+10) + 4z = 150 + 210 + 280 = 640

The total number of red, blue and green pens sold on Saturday is 20% more than that of Thursday = $640 \times \frac{120}{100} = 768$

The cost of each pen is Rs 10.

Therefore, the total revenue generated by selling all the pens = $768 \times 10 = 7680$

Q9   Text Solution:

The number of red pens Sold on Thursday = 6y – 30 = 150

So, y = 30

Number of Blue pens sold Tuesday = 2x + 20 = 120

So, x = 50

Number of green pens sold on Monday = 3z + 70 = 280

So, z = 70

The total number of red, blue and green Pens sold on Tuesday = (3y-10) + (2x+20) + 140 = 80 + 120 + 140 = 340

The total number of green pens sold on Wednesday, Thursday and Friday = (4z-20) + 4z + 3z = 11z - 20 = 750

Required difference = 750 - 340 = 410 less

Q10   Text Solution:

Let total order received on Sunday of Week II = 100%

So, it clearly the week two started with Sunday Given, Remaining orders which did not delivered in these

six days of week II are 50

So, 100% - (16% + 12% + 24% + 20% + 8% + 15%) = 50

5% = 50

So, 100% = 1000

Days	Total orders delivered	Order return
Monday	160	xxx
Tuesday	120	48
Wednesday	240	28
Thursday	200	156
Friday	80	36
Saturday	150	95

If we arrange returns orders in increasing order then,

Monday	xx
Tuesday	28
Wednesday	36
Thursday	48
Friday	95
Saturday	156

Orders returned on Tuesday & Thursday together = 48+156 = 204

Orders received on Saturday = 150

Required ratio = 204 : 150 = 102 : 75

Q11   Text Solution:

Let total order received on Sunday of Week II = 100%

So, it clearly the week two started with Sunday

Given, Remaining orders which did not delivered in these

six days of week II are 50

So, 100% – (16% + 12% + 24% + 20% + 8% + 15%) = 50

5% = 50

So, 100% = 1000

Days	Total orders delivered	Order return
Monday	160	xxx
Tuesday	120	48
Wednesday	240	28
Thursday	200	156
Friday	80	36
Saturday	150	95

Orders returned on Saturday = 95

order returned on Wednesday = 28

Required % = $\frac{95-28}{28}$ x 100 = 239.28%

Q12 Text Solution:

Let total order received on Sunday of Week II = 100%

So, it clearly the week two started with Sunday

Given, Remaining orders which did not delivered in these

six days of week II are 50

So, 100% – (16% + 12% + 24% + 20% + 8% + 15%) = 50

5% = 50

So, 100% = 1000

Days	Total orders delivered	Order return
Monday	160	xxx
Tuesday	120	48
Wednesday	240	28
Thursday	200	156
Friday	80	36
Saturday	150	95

If we arrange returns orders in increasing order then,

Monday	xx
Tuesday	28
Wednesday	36
Thursday	48
Friday	95
Saturday	156

Average = $\frac{36+48+95+156}{4}$ = 83.75

Q13 Text Solution:

Let total order received on Sunday of Week II = 100%

So, it clearly the week two started with Sunday

Given, Remaining orders which did not delivered in these

six days of week II are 50

So, 100% – (16% + 12% + 24% + 20% + 8% + 15%) = 50

5% = 50

So, 100% = 1000

Days	Total orders delivered	Order return
Monday	160	xxx
Tuesday	120	48
Wednesday	240	28
Thursday	200	156
Friday	80	36
Saturday	150	95

Total numbers of orders delivered o tuesday = 120 - 28 = 92

Q14 **Text Solution:**

Let total order received on Sunday of Week II = 100%

So, it clearly the week two started with Sunday

Given, Remaining orders which did not delivered in these

six days of week II are 50

So, 100% − (16% + 12% + 24% + 20% + 8% + 15%) = 50

5% = 50

So, 100% = 1000

Days	Total orders delivered	Order return
Monday	160	xxx
Tuesday	120	48
Wednesday	240	28
Thursday	200	156
Friday	80	36
Saturday	150	95

If we arrange returns orders in increasing order then,

Monday	xx
Tuesday	28
Wednesday	36
Thursday	48
Friday	95
Saturday	156

Friday = 200

Thursday = 80

Order returned on Friday = 5% (160+120+240+80) = 30

Order returned on saturday = 95

Required difference = 95−30 = 65

Q15 **Text Solution:**

Let total order received on Sunday of Week II = 100%

So, it clearly the week two started with Sunday

Given, Remaining orders which did not delivered in these

six days of week II are 50

So, 100% − (16% + 12% + 24% + 20% + 8% + 15%) = 50

5% = 50

So, 100% = 1000

Days	Total orders delivered	Order return
Monday	160	xxx
Tuesday	120	48
Wednesday	240	28
Thursday	200	156
Friday	80	36
Saturday	150	95

If we arrange returns orders in increasing order then,

Monday	xx
Tuesday	28
Wednesday	36
Thursday	48
Friday	95
Saturday	156

Total number of returned orders from Tuesday to Saturday = 48+28+156+36+95 = 363

Q16 Text Solution:

Number of defective items sold to the customer

=

$\frac{1620}{60}$ = 27

Number of all defective units in may = $\frac{27}{10}$ x 100= 270

Total manufactured units = $\frac{270}{20}$ x 100 = 1350

Q17 Text Solution:

Let number of all defective units in May and August be x and y respectively.

ATQ,

y × 90

100 × 20 − x×70

100 × 20 = 5300

⇒ 18y − 14x = 5300 ...(i)

And,

x×30

100 × 60 − y×10

100 × 60 = 900

⇒ 18x − 6y = 900 ...(ii)

From (i) & (ii)

X = 200 and y = 450

Required ratio = 200 : 450 = 4 : 9

Q18 Text Solution:

Number of defective fans found during testing in June = $\frac{5600}{20}$ = 280

Total number of defective fans in that month = $\frac{280}{70}$ x 100 = 400

Required % = 400 $\frac{400}{2400}$ x 100 = $16\frac{2}{3}$ %