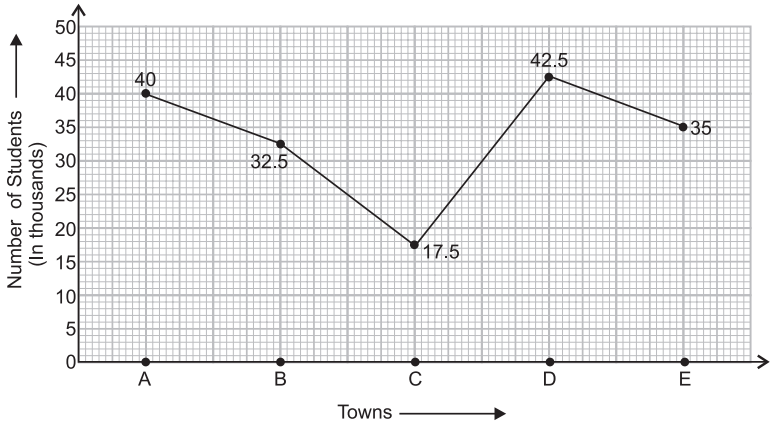
39 Line Graphs

EXERCISE – I

Directions *(Question 1-5)*: *Study the following line graph carefully and answer the questions given below:*

(Bank P.O., 2011)

Number of Students Appearing For Aptitude Test From Various Towns (In Thousands)

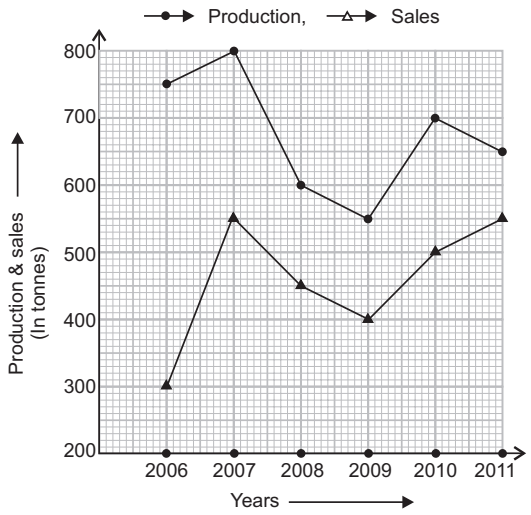


1. What is the ratio of the number of students appearing for the Aptitude Test from Town *B* to that from Town A?
   (*a*) 3 : 4 (*b*) 13 : 16
   (*c*) 11 : 16 (*d*) 2 : 3
   (*e*) None of these
2. What is the average number of students appearing for the Aptitude Test from all the towns together ?
   (*a*) 33500 (*b*) 3350
   (*c*) 17500 (*d*) 33.5(*e*) None of these
3. The number of students appearing for the Aptitude Test from Town E is approximately what per cent of the total number of students appearing for the Aptitude Test from all the towns together ?
   (*a*) 15 (*b*) 17
   (*c*) 19 (*d*) 21
   (*e*) 23
4. What is the ratio of the number of students appearing for the Aptitude Test from Towns C and D together to the number of students appearing for the Aptitude Test from Towns A, D and E together?
   (*a*) 11 : 13 (*b*) 20 : 43
   (*c*) 20 : 47 (*d*) 37 : 20
   (*e*) None of these
5. The number of students appearing for the Aptitude Test from Town D is approximately what percentage of the number of students appearing for the Aptitude Test from Town C ?
   (*a*) 243 (*b*) 413
   (*c*) 134 (*d*) 341
   (*e*) 143

Directions *(Questions 6–10): Study the following graph and answer the questions that follow:*

(Bank P.O., 2012)

Production (in tonnes) and Sales (in tonnes) of Company A from 2006 to 2011



The table given below represents the ratio of the production (in tonnes) of Company A to the production (in tonnes) of Company B and ratio of sales of Company A and Company B.

Year	Production (*A* : *B*)	Sales (*A* : *B*)
2006	5 : 4	2 : 3
2007	8 : 7	11 : 12
2008	3 : 4	9 : 14
2009	11 : 12	4 : 5
2010	14 : 13	10 : 9
2011	13 : 14	1 : 1

6. What is the approximate percentage increase in the production of Company A from 2009 to 2010 ?

(*a*) 18% (*b*) 38%
(*c*) 23% (*d*) 27%
(*e*) 32%

7. The sales of Company A in the year 2009 was approximately what percent of its production in the same year?

(*a*) 65% (*b*) 73%
(*c*) 79% (*d*) 83%
(*e*) 69%

8. What is the average production of Company B (in tonnes) from the year 2006 to the year 2011 ?

(*a*) 574 (*b*) 649
(*c*) 675 (*d*) 593
(*e*) 618

9. What is the ratio of the total production of Company *A* to the total sales of Company *A* ?

(*a*) 81 : 64 (*b*) 64 : 55
(*c*) 71 : 81 (*d*) 71 : 55
(*e*) 81 : 55

10. What is the ratio of production of Company *B* in the year 2006 to production of Company *B* in the year 2008 ?

(*a*) 2 : 5 (*b*) 4 : 5
(*c*) 3 : 4 (*d*) 3 : 5
(*e*) 1 : 4

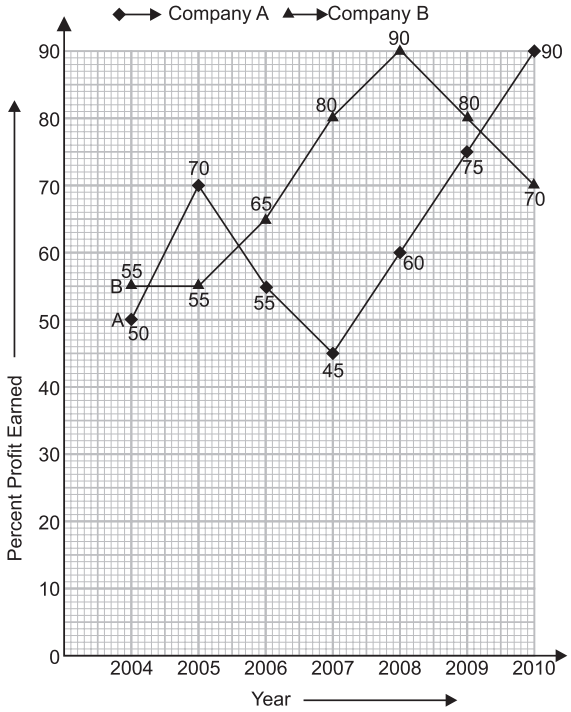
Directions ***(Questions 11–18): Study the following graphs carefully and answer the questions that follow:***

(Bank P.O., 2011)

Percent Profit Earned By Companies *A* and *B* Producing Electronic Goods Over The Years.

$$\text{Percent Profit} = \left(\frac{\text{Profit Earned}}{\text{Total Investment}} \times 100\right)\%$$

Profit Earned = (Total Income)
– (Total Investment in the Year)



11. If the profit earned in 2006 by Company B was ₹ 812500, what was the total income of the company in that year ?

(*a*) ₹ 1250000 (*b*) ₹ 2062500
(*c*) ₹ 1650000 (*d*) 1825000
(*e*) None of these

12. If the amounts invested by the two companies in 2005 were equal, what was the ratio of the total income of Company A to that of B on 2005 ?

(*a*) 31 : 33 (*b*) 33 : 31
(*c*) 34 : 31 (*d*) 14 : 11
(*e*) None of these

13. If the total amount invested by the two companies in 2009 was ₹ 27 lakh, while the amount invested by Company B was 50% of the amount invested by Company A, what was the total profit earned by the two companies together ?

(*a*) ₹ 21.15 lakh (*b*) ₹ 20.70 lakh
(*c*) ₹ 18.70 lakh (*d*) ₹ 20.15 lakh
(*e*) None of these

14. If the income of Company A in 2007 and that in 2008 were equal and the amount invested in 2007 was ₹ 12 lakh, what was the amount invested in 2008 ?

(*a*) ₹ 1087500 (*b*) ₹ 1085700
(*c*) ₹ 1245000 (*d*) ₹ 1285000
(*e*) None of these

15. If the amount of profit earned by Company A in 2006 was ₹ 10.12 lakh, what was the total investment ?

(*a*) ₹ 13.8 lakh (*b*) ₹ 14.9 lakh

(*c*) ₹ 15.4 lakh (*d*) ₹ 14.2 lakh

(*e*) None of these

16. If the amount invested by Company B in 2004 is ₹ 12 lakh and income of 2004 is equal to the investment in 2005, what is the amount of profit earned in 2005 by Company B ?

(*a*) ₹ 6.6 lakh (*b*) ₹ 18.6 lakh

(*c*) ₹ 10.23 lakh (*d*) ₹ 9.6 lakh

(*e*) None of these

17. If the investments of Company *A* in 2007 and 2008 were equal, what is the difference between the profits earned in the two years if the income in 2008 was ₹ 24 lakh ?

(*a*) ₹ 2.25 lakh (*b*) ₹ 3.6 lakh

(*c*) ₹ 1.8 lakh (*d*) ₹ 2.6 lakh

(*e*) None of these

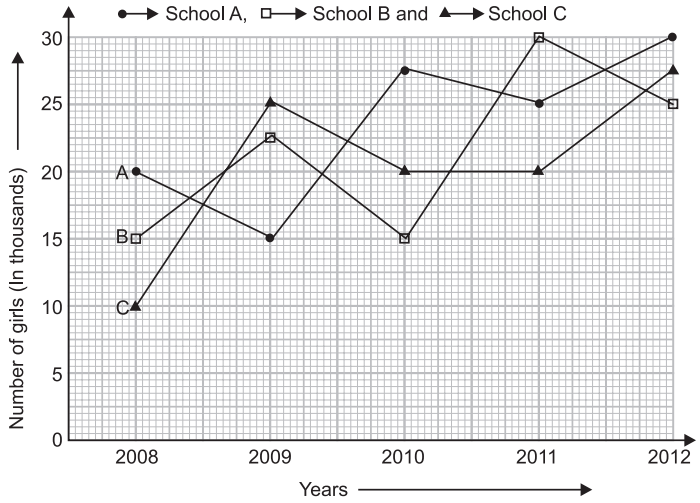
18. If each of the companies *A* and *B* invested ₹ 25 lakh in 2010, what was the average profit earned by the two companies ?

(*a*) ₹ 18 lakh (*b*) ₹ 22.5 lakh

(*c*) ₹ 17.5 lakh (*d*) ₹ 20 lakh

(*e*) None of these

Directions ***(Questions 19–23): Study the following graph carefully and answer the questions that follow:***



19. What was the ratio between the number of girls enrolled in School *C* in the year 2011 and the total number of girls enrolled in School A and School B together in the same year ?

(*a*) 11 : 3 (*b*) 3 : 11

(*c*) 4 : 11 (*d*) 4 : 7

(*e*) None of these

20. In which school was the difference between the number of girls enrolled in the years 2012 and 2008 minimum ?

(*a*) Only School A

(*b*) Only School B

(*c*) Only School C

(*d*) Both School A and School B

(*e*) Both School A and School C

21. What was the approximate average number of girls enrolled in the year 2010 in all the three schools together ?

(*a*) 20800 (*b*) 2300

(*c*) 20000 (*d*) 22500

(*e*) 21600

22. Total number of girls enrolled in all the three schools in the year 2008 was what percentage of the number of girls enrolled in School C in the year 2011 ?

(*a*) 44.4 % (*b*) 225%

(*c*) 165% (*d*) 240%

(*e*) None of these

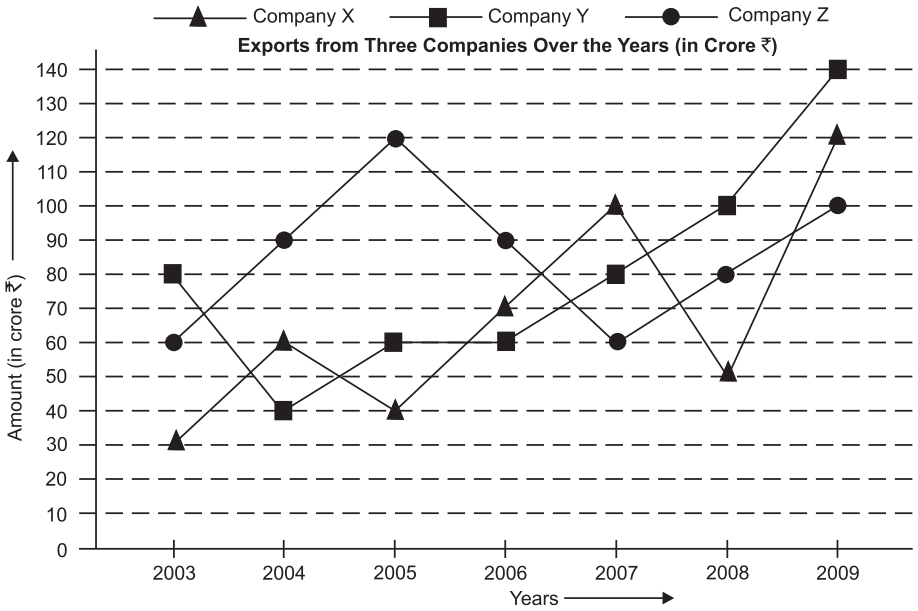
23. In which year was the total number of girls enrolled in all the three schools together second highest ?

(*a*) 2008 (*b*) 2009

(*c*) 2010 (*d*) 2011

(*e*) 2012

Directions *(Questions 24-28)*: ***Study the following graphs and answer the questions given below which are based on these graphs.***



24. Average annual exports during the given period for Company Y is approximately what percent of the average annual exports for Company Z ?
(*a*) 87.12% (*b*) 89.64%
(*c*) 91.21% (*d*) 93.33%
(*e*) 95.15%

25. In how many of the given years, were the exports from Company Z more than the average annual exports over the given years ?
(*a*) 2 (*b*) 3
(*c*) 4 (*d*) 5
(*e*) 6

26. What was the difference between the average exports of the three companies in 2003 and the average exports in 2008 ?
(*a*) ₹ 15.33 crores (*b*) ₹ 18.67 crores
(*c*) ₹ 20 crores (*d*) ₹ 22 : 17 crores
(*e*) ₹ 25 crores

27. In which year was the difference between the exports from Companies X and Y the minimum ?
(*a*) 2004 (*b*) 2005
(*c*) 2006 (*d*) 2007
(*e*) None of these

28. For which of the following pairs of years the total exports from the three companies together are equal ?
(*a*) 2005 and 2008 (*b*) 2006 and 2008
(*c*) 2007 and 2008 (*d*) 2005 and 2006
(*e*) 2003 and 2004

The amount of exports of X, Y, Z (In crore ₹) in various years are:

	Export (in crore ₹)						
Year →	2003	2004	2005	2006	2007	2008	2009
X	30	60	40	70	100	50	120
Y	80	40	60	60	80	100	140
X	60	90	120	90	60	80	100

ANSWERS

1. (*b*)	**2.** (*a*)	**3.** (*d*)	**4.** (*e*)	**5.** (*a*)	**6.** (*a*)	**7.** (*b*)	**8.** (*c*)	**9.** (*e*)	**10.** (*c*)
11. (*b*)	**12.** (*c*)	**13.** (*b*)	**14.** (*a*)	**15.** (*e*)	**16.** (*c*)	**17.** (*a*)	**18.** (*d*)	**19.** (*c*)	**20.** (*d*)
21. (*a*)	**22.** (*b*)	**23.** (*d*)	**24.** (*d*)	**25.** (*c*)	**26.** (*c*)	**27.** (*c*)	**28.** (*d*)		

SOLUTIONS

1. Ratio of number of students from Town B to that from Town A

$$= \frac{32.5\times1000}{40\times1000} = \frac{325}{400} = \frac{13}{16} = 13:16.$$

2. Average number of students appearing in Aptitude Test from all towns

$$= \frac{(40+32.5+17.5+42.5+35)\times1000}{5}$$

$$= \frac{167.5\times1000}{5}$$

$$= (33.5 \times 1000) = 33500.$$

3. Required % $= \left\{\frac{35\times1000}{167.5\times1000}\times100\right\}\%$

$$= \left(\frac{350\times100}{1675}\right)\% = \frac{1400}{67}\%$$

$$= 20.89\% \simeq 21\% \text{ (nearly).}$$

4. (Students from Towns C and D) : (Students from Towns A, D and E)

$$= \frac{(17.5+42.5)\times1000}{(40+42.5+35)\times1000}$$

$$= \frac{60}{117.5} = \frac{600}{1175} = \frac{24}{47} = 24:47.$$

5. Required prcentage

$$= \left(\frac{42.5\times1000}{17.5\times1000}\times100\right)\%$$

$$= \left(\frac{425}{175}\times100\right)\% = \left(\frac{425\times4}{7}\right)\%$$

$$= \frac{1700}{7}\% = 242.85\% \simeq 243\% \text{ (nearly).}$$

6. Percentage increase in production of A from 2009 to 2010

$$= \left\{\frac{(700-550)}{550}\times100\right\}\%$$

$$= \left(\frac{150}{550}\times100\right)\% = \frac{300}{11}\%$$

$$= 27.2\% \simeq 27\% \text{ (approx.)}$$

7. Required % $= \left(\frac{400}{550}\times100\right)\% = \frac{800}{11}\%$

$$= 72.7\% \simeq 73\% \text{ (approx.)}$$

8. Average production of Company B from 2006 to 2011

$$= \frac{1}{6}\times\left[\begin{array}{c}\left(\frac{4}{5}\times750\right)+\left(\frac{7}{8}\times800\right)+\left(\frac{4}{3}\times600\right)\\+\left(\frac{12}{11}\times550\right)+\left(\frac{13}{14}\times700\right)+\left(\frac{14}{13}\times650\right)\end{array}\right] \text{ tonners}$$

$$= \frac{1}{6}(600+700+800+600+650+700)\text{tonnes}$$

$$= \frac{4050}{6} \text{ tonnes} = 675 \text{ tonnes.}$$

9. Total production of Company A

= (750 + 800 + 600 + 550 + 700 + 650) tonnes

= 4050 tonnes.

Total sales of Company A

= (300 + 550 + 450 + 400 + 500 + 550) tonnes

= 2750 tonnes.

Required ratio = 4050 : 2750 $= \frac{4050}{2750} = \frac{81}{55} = 81:55.$

10. Production of Company B in 2006

$$= \left(\frac{4}{5}\text{ of }750\right)\text{tonnes} = 600 \text{ tonnes.}$$

Production of Company B in 2008

$$= \left(\frac{4}{3}\text{ of }600\right) \text{ tonnes} = 800 \text{ tonnes.}$$

Required ratio = 600 : 800 = 3 : 4.

11. Investment in 2006

$$= ₹\left(\frac{100}{65}\times812500\right) = ₹(100\times12500)$$

$$= ₹\,1250000.$$

Total income of *B* in 2006

= (Investment) + (Profit)

= ₹(1250000 + 812500) = ₹ 2062500.

12. Let the investment of each in 2005 be ₹ x. Then

(Income of A) : (Income of B)

= ₹ (x + 70% of x) : ₹ (x + 55% of x) [∵ Income = (Investment) + (Profit)]

$$= \left(x+\frac{70x}{100}\right):\left(x+\frac{55x}{100}\right)$$

$$= \left(x+\frac{7x}{10}\right):\left(x+\frac{11x}{20}\right)$$

$$= \frac{17x}{10}:\frac{31x}{20} = 34:31.$$

13. Let the investment of *A* in 2009 be ₹ x. Then,

Investment of B = 50% of ₹ x = ₹ $\left(x\times\frac{50}{100}\right) = ₹\left(\frac{x}{2}\right)$.

$$\therefore \quad \left(x+\frac{x}{2}\right) = 27 \text{ lakh}$$

$$\Rightarrow \frac{3x}{2} = 27 \text{ lakh}$$

$$\Rightarrow x = \left(27\times\frac{2}{3}\right) \text{ lakh} = 18 \text{ lakh.}$$

∴ Investment of A in 2009 = ₹ 18 lakh and investment of B = ₹ 9 lakh.

Profit of A = ₹ $\left(18 \text{ lakh}\times\frac{75}{100}\right) = ₹\,13.50 \text{ lakh.}$

Profit of B = ₹ $\left(9 \text{ lakh}\times\frac{80}{100}\right) = ₹\,7.20 \text{ lakh.}$

Total profit of A and B = ₹ (13.50 + 7.20) lakh

= ₹ 20.70 lakh.

14. Investment of A in 2007
= ₹ 12 lakh and profit % = 45%.

Income of A in 2007 = ₹ $\left(\frac{145}{100}\times 12 \text{ lakh}\right)$ = ₹ 17.4 lakh.

Amount invested by A in 2008 = ₹ $\left(\frac{100}{160}\times 17.4 \text{ lakh}\right)$

= ₹ (10.875 × 100000) = ₹ 1087500.

15. Let the investment of A in 2006 be ₹ x. Then,

Profit = 55% of ₹ x = ₹ $\left(x\times\frac{55}{100}\right)$ = ₹ $\left(\frac{11x}{20}\right)$.

$\therefore \quad \frac{11x}{20} = 10.12 \text{ lakh} = 10.12\times 100000 = 1012000$

$\Rightarrow \quad x = \left(1012000\times\frac{20}{11}\right) = 1840000 = 18.4 \text{ lakh}$

$\Rightarrow$ Investment of A in 2006 = 18.4 lakh.

16. Investment of B in 2004 = 12 lakh.

Income of B in 2004 = ₹ $\left(\frac{155}{100}\times 12 \text{ lakh}\right)$ = ₹ (18.6 lakh).

Profit earned in 2005 = ₹ $\left(\frac{55}{100}\times 18.6 \text{ lakh}\right)$

= ₹ $\left(\frac{11}{10}\times 9.3 \text{ lakh}\right)$

= ₹ 10.23 lakh.

17. Let the investment of A in 2008 be ₹ x. Then,

$\left(\frac{160}{100}\times x\right) = 24 \text{ lakh} \Rightarrow x = \left(24\times\frac{5}{8}\right)\text{lakh} = 15 \text{ lakh}.$

$\therefore$ Investment of A in 2008 = 15 lakh.

Profit of A in 2008
= ₹ (24 – 15) lakh = ₹ 9 lakh.

Investment of A in 2007
= Investment of A in 2008 = ₹ (15 lakh).

Profit of A in 2007 = ₹ $\left(\frac{45}{100}\times 15 \text{ lakh}\right)$

= ₹ $\frac{27}{4}$ lakh = ₹ 6.75 lakh.

Difference between the profits of A in 2007 and 2008
= ₹ (9 – 6.75) lakh = ₹ 2.25 lakh.

18. Average profit of A and B in 2010

$= \frac{1}{2}\times\left[\left(\frac{90}{100}\times 25 \text{ lakh}\right)+\left(\frac{70}{100}\times 25 \text{ lakh}\right)\right]$

$= \frac{1}{2}\times\left(\frac{45}{2}+\frac{35}{2}\right)\text{lakh} = \frac{80}{4}\text{ lakh} = 20 \text{ lakh}.$

19. Required ratio = 20000 : (25000 + 30000)
= 20000 : 55000 = 20 : 55 = 4 : 11.

20. Difference between the number of girls enrolled in 2012 and 2008 (in thousands) :
A → (30 – 20) = 10 ; B → (25 – 15)
= 10 ; C → (27.5 – 10) = 17.5
So, it was minimum in both A and B.

21. Required average

$= \frac{1}{3}(27.5+15+20) \text{ thousands}$

$= \left(\frac{62.5}{3}\times 1000\right) = \frac{62500}{3}$

$= 20833 \simeq 20800$ (approx.)

22. Required percentage = $\left\{\frac{(20+15+10)\times 1000}{20\times 1000}\times 100\right\}\%$

$= \left\{\frac{45}{20}\times 100\right\}\% = 225\%.$

23. Total number of girls enrolled in all the three schools in various years (in thousands) :
2008 → (20 + 15 + 10) = 45 ;
2009 → (15 + 22.5 + 25) = 62.5;
2010 → (27.5 + 15 + 20) = 62.5 ;
2011 → (25 + 30 + 20) = 75;
2012 → (30 + 25 + 27.5) = 82.5.
Clearly, it was second highest in 2011.

24. Average annual export of Y during the given period (in crore ₹) :

$= \frac{1}{7}(80+40+60+60+80+100+140)$

$= \frac{560}{7} = 80.$

Average annual export of Z during the given period (In crore ₹)

$= \frac{1}{7}(60+90+120+90+60+80+100) = \frac{600}{7}.$

Required percentage = $\left\{\frac{80}{\left(\frac{600}{7}\right)}\times 100\right\}\%$

$= \left(\frac{80\times 7\times 100}{600}\right)\% = \frac{280}{3}\% = 93.33\%.$

25. Average annual export of Z (in crore ₹)

= ₹ $\left(\frac{600}{7}\right)$ crores = ₹ 85.71 crores.

From the graph it follows that the export of z was more than the average during the years 2004, 2005, 2006 and 2009. i.e. during four years.

26. Average export of X, Y and Z in 2003

= ₹ $\left\{\frac{1}{3}(30+80+60) \text{ crores}\right\}$ = ₹ $\left(\frac{170}{3}\right)$ crores.

Average export of X, Y and Z in 2008

= ₹ $\left\{\frac{1}{3}(50+100+80)\right\}$ crores = ₹ $\left(\frac{230}{3}\right)$ crores.

Required difference = ₹ $\left(\frac{230}{3}-\frac{170}{3}\right)$ crores

= ₹ $\left(\frac{60}{3}\right)$ crores = ₹ 20 crores.

27. Difference between the exports of X and Y (In crore ₹):
2003 → (80 – 30) = 50 ;
2004 → (60 – 40) = 20 ;
2005 → (60 – 40) = 20 ;
2006 → (70 – 60) = 10 ;
2007 → (100 – 80) = 20 ;

2008 → (100 – 50) = 50 ;
2009 → (140 – 120) = 20.
This is minimum in the year 2006.

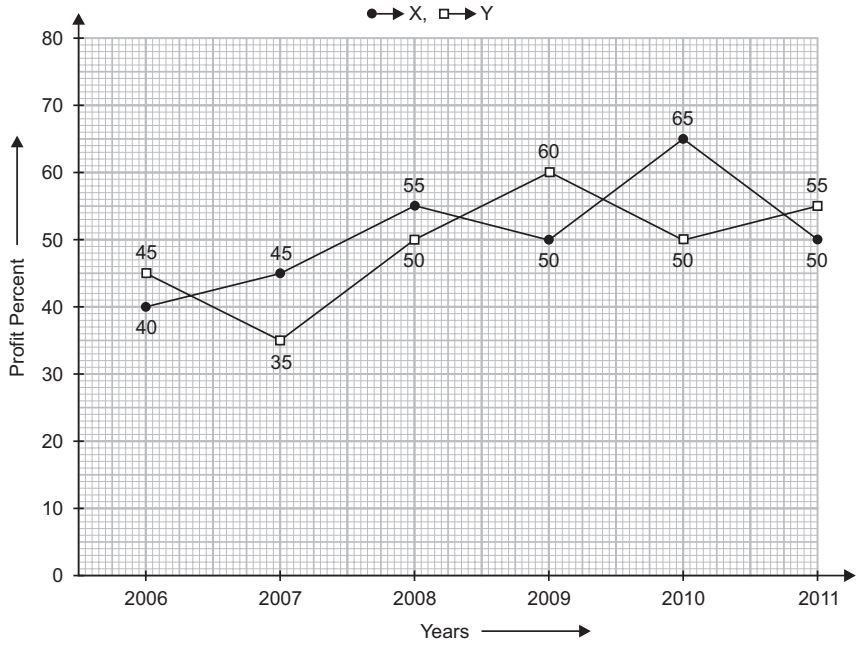
28. Total exports of X, Y, Z (in crore ₹) are:
2003 → (30 + 80 + 60) = 170 ;
2004 → (60 + 40 + 90) = 190 ;
2005 → (40 + 60 + 120) = 220 ;
2006 → (70 + 60 + 90) = 220 ;
2007 → (100 + 80 + 60) = 240 ;
2008 → (50 + 100 + 80) = 230 ;
2009 → (120 + 140 + 100) = 360.
The total export of X, Y, Z remains the same during 2005 and 2006.

EXERCISE – II

Directions *(Questions 1–5): The following linegraph gives the percent profit earned by two companies X and Y during the period 2006 – 2011. Study the line graph and answer the questions that are based on it.*

Percentage Profit Earned by Companies X and Y over Given Years

Profit or Loss % = $\left\{\frac{\text{(Income)} - \text{(Expenditure)}}{\text{(Expenditure)}} \times 100\right\}$



1. If the expenditure of Company Y in 2007 was ₹ 220 crores, what was its income in that year ?
(*a*) ₹ 312 crores (*b*) ₹ 297 crores
(*c*) ₹ 283 crores (*d*) ₹ 275 crores
(*e*) ₹ 261 crores

2. If the incomes of the two companies were equal in 2009, what was the ratio of expenditure of Company X to that of Company Y in that year ?
(*a*) 6 : 5 (*b*) 5 : 6
(*c*) 11 : 6 (*d*) 16 : 15
(*e*) 15 : 16

3. The incomes of the Companies X and Y in 2010 were in the ratio 3 : 4 respectively. What was the respective ratio of their expenditures in 2010 ?
(*a*) 7 : 22 (*b*) 14 : 19
(*c*) 15 : 22 (*d*) 27 : 35
(*e*) 33 : 40

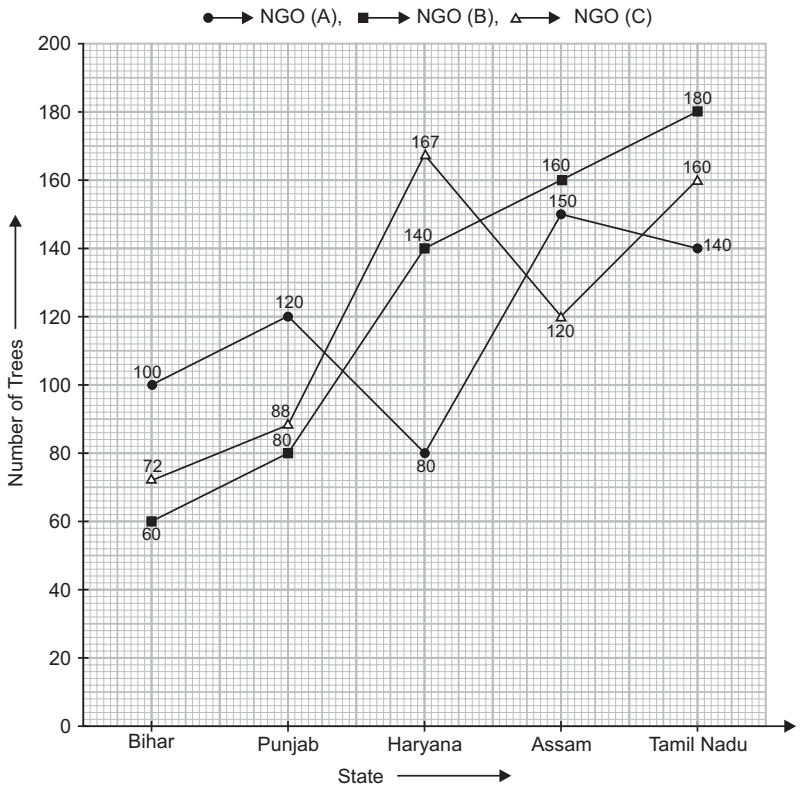
4. If the expenditures of Companies X and Y in 2006 were equal and the total income of the two companies in that year be ₹ 342 crores, what was the total profit of the two companies together in that year ? Profit = (Income) – (Expenditure)
(*a*) ₹ 240 crores (*b*) ₹ 171 crores
(*c*) ₹ 120 crores (*d*) ₹ 102 crores
(*e*) None of these

5. The expenditure of Company X in the year 2008 was ₹ 200 crores and the income of this company in the same year was the same as its expenditure in 2011. The income of Company X in 2011 was :
(*a*) ₹ 465 crores (*b*) ₹ 385 crores
(*c*) ₹ 335 crores (*d*) ₹ 295 crores
(*e*) ₹ 255 crores

Directions *(Questions 6–10): Study the following graph carefully and answer the questions that follow.*

(Bank P.O., 2011)

Number of Trees Planted by Three Different NGOs A, B and C in Five Different States



6. In which of the following states was the total number of trees planted by NGOs A and B together second lowest ?

(*a*) Bihar (*b*) Punjab

(*c*) Haryana (*d*) Assam

(*e*) Tamil Nadu

7. What was the difference between the trees planted by NGO – A in Haryana and those planted by NGO – C in Tamil Nadu ?

(*a*) 90 (*b*) 60

(*c*) 120 (*d*) 160

(*e*) None of these

8. What was the average number of trees planted in Haryana by all the NGOs together ?

(*a*) 420 (*b*) 140

(*c*) 120 (*d*) 390

(*e*) None of these

9. The total number of trees planted by NGOs A and B together in Bihar was approximately what percentage of the total number of trees planted by NGOs B and C together in Punjab ?

(*a*) 85 (*b*) 90

(*c*) 105 (*d*) 110

(*e*) 95

10. What was the ratio of the number of trees planted by NGO – B in Tamil Nadu, the number of trees planted by NGO – *C* in Assam and the number of trees planted by NGO – *A* in Assam ?

(*a*) 5 : 3 : 6 (*b*) 5 : 6 : 3

(*c*) 6 : 4 : 5 (*d*) 6 : 5 : 3

(*e*) None of these

Directions *(Questions 11–15): The following line-graph gives the ratio of the amounts of imports by a company to the amount of exports from that company over the period from 2005 to 2011.* **(Bank P.O., 2011)**

The questions given below are based on this graph.

11. In how many of the given years were the exports more than the imports ?

(*a*) 1 (*b*) 2

(*c*) 3 (*d*) 4

(*e*) None of these

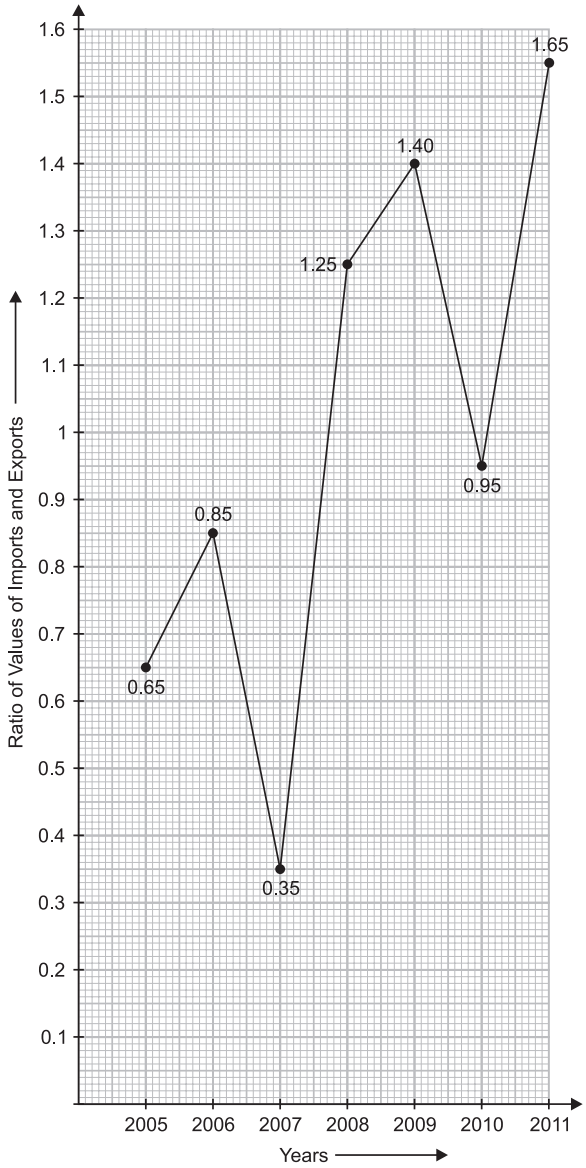
12. The imports were minimum proportionate to the exports of the company in which of the following years ?

(*a*) 2005 (*b*) 2006
(*c*) 2007 (*d*) 2010
(*e*) 2011

13. If the imports of the company in 2006 be ₹ 272 crores, the exports from the company in the same year was:

(*a*) ₹ 370 crores (*b*) ₹ 320 crores
(*c*) ₹ 280 crores (*d*) ₹ 275 crores
(*e*) ₹ 264 crores

Ratio of Values of Imports to Exports by a Company Over the Years



14. What was the percentage increase in imports from 2007 to 2008 ?

(*a*) 72% (*b*) 56%
(*c*) 28% (*d*) None of these
(*e*) Data inadequate

15. If the imports in 2008 was ₹ 250 crores and the total exports in the years 2008 and 2009 together was ₹ 500 crores, then the imports in 2009 was

(*a*) ₹ 250 crores (*b*) ₹ 300 crores
(*c*) ₹ 357 crores (*d*) ₹ 420 crores
(*e*) None of these

ANSWERS

1. (*b*)	**2.** (*d*)	**3.** (*c*)	**4.** (*d*)	**5.** (*a*)	**6.** (*b*)	**7.** (*e*)	**8.** (*e*)	**9.** (*e*)	**10.** (*c*)
11. (*d*)	**12.** (*c*)	**13.** (*b*)	**14.** (*e*)	**15.** (*d*)					

SOLUTIONS

1. Let the income of Y in 2007 be ₹ x crores. Then,

$$\frac{(x-220)}{220}\times 100 = 35 \Rightarrow \frac{5(x-220)}{11} = 35$$

$$\Leftrightarrow (x - 220) = \frac{35\times 11}{5} = 77 \Rightarrow x = (77 + 220) = 297.$$

Hence, the income of Y in 2007 was ₹ 297 crores.

2. Let the income of each company in 2009 be ₹ x and let their expenditures be

E_1 and E_2 respectively. Then,

$$\frac{(x-E_1)}{E_1}\times 100 = 50 \text{ and } \frac{(x-E_2)}{E_2}\times 100 = 60$$

$$\Rightarrow \frac{x}{E_1} - 1 = \frac{50}{100} = \frac{1}{2} \text{ and } \frac{x}{E_2} - 1 = \frac{60}{100} = \frac{3}{5}$$

$$\Rightarrow \frac{x}{E_1} = \left(\frac{1}{2}+1\right) \text{ and } \frac{x}{E_2} = \left(\frac{3}{5}+1\right)$$

$$\Rightarrow \frac{x}{E_1} = \frac{3}{2} \text{ and } \frac{x}{E_2} = \frac{8}{5} \Rightarrow x = \frac{3E_1}{2} \text{ and } x = \frac{8E_2}{5}$$

$$\Rightarrow \frac{3E_1}{2} = \frac{8E_2}{5} \Rightarrow \frac{E_1}{E_2} = \left(\frac{8}{5}\times\frac{2}{3}\right) = \frac{16}{15}$$

$$\Rightarrow E_1 : E_2 = 16 : 15.$$

3. Let the incomes of X and Y in 2010 be ₹ $3x$ and ₹ $4x$ respectively and let their expenditures be E_1 and E_2 respectively.

Then, $\frac{(3x-E_1)}{E_1}\times 100 = 65$ and $\frac{(4x-E_2)}{E_2}\times 100 = 50$

$$\Rightarrow \frac{3x}{E_1} - 1 = \frac{65}{100} \text{ and } \frac{4x}{E_2} - 1 = \frac{50}{100}$$

$$\Rightarrow \frac{3x}{E_1} = \left(\frac{13}{20}+1\right) \text{ and } \frac{4x}{E_2} = \left(\frac{1}{2}+1\right)$$

$$\Rightarrow \frac{3x}{E_1} = \frac{33}{20} \text{ and } \frac{4x}{E_2} = \frac{3}{2}$$

$$\Rightarrow E_1 = \frac{60x}{33} = \frac{20x}{11} \text{ and } E_2 = \frac{8x}{3}$$

$$\Rightarrow E_1 : E_2 = \frac{20x}{11} : \frac{8x}{3} = 60 : 88 = 15 : 22.$$

4. Let the expenditures of each of X and Y in 2006 be ₹ x crores and let the income of X in 2006 be ₹ z crores.

Then, income of Y in 2006 = ₹ $(342 - z)$ crores.

$$\therefore \frac{(z-x)}{x}\times 100 = 40 \text{ and } \frac{\{(342-z)-x\}}{x}\times 100 = 45$$

$$\Rightarrow \frac{(z-x)}{x} = \frac{40}{100} = \frac{2}{5} \text{ and } \frac{(342-z-x)}{x} = \frac{45}{100} = \frac{9}{20}$$

$$\Rightarrow 5z - 5x = 2x \text{ and } 6840 - 20z - 20x = 9x$$

$$\Rightarrow 7x = 5z \text{ and } 29x = 6840 - 20z$$

$$\Rightarrow x = \frac{5z}{7} \text{ and } x = \frac{6840-20z}{29}$$

$$\Rightarrow \frac{5z}{7} = \frac{6840-20z}{29} \Rightarrow 145z = 47880 - 140z$$

$$\Rightarrow 285z = 47880$$

$$\Rightarrow z = \frac{47880}{285} \Rightarrow z = 168.$$

Putting $z = 168$ in $x = \frac{5z}{7}$, we get $x = \frac{5\times 168}{7} = 120.$

$\therefore$ Total Expenditure of X and Y in 2006

= ₹ $2x$ crores = ₹ 240 crores.

Total Income of X and Y in 2006 = ₹ 342 crores.

$\therefore$ Total Profit of X and Y in 2006

= ₹ (342 – 240) crores = ₹ 102 crores.

5. Let the income of X in 2008 be ₹ x crores. Then,

$$\frac{(x-200)}{200}\times 100 = 55 \Rightarrow x - 200 = 110 \Rightarrow x = 310.$$

$\therefore$ Expenditure of X in 2011

= Income of X in 2008 = ₹ 310 cores.

Let the income of X in 2011 be ₹ z crores. Then,

$$\frac{(z-310)}{310}\times 100 = 50 \Rightarrow \frac{(z-310)}{310} = \frac{50}{100} = \frac{1}{2}$$

$\Rightarrow (z - 310) = 155 \Rightarrow z = 465.$

$\therefore$ Income of X in 2011 = ₹ 465 crores.

6. Total number of trees planted by A and B in :

Bihar → (100 + 60) = 160 ;

Punjab → (120 + 80) = 200 ;

Haryana → (140 + 80) = 220 ;

Assam → (150 + 160) = 310 ;

Tamil Nadu → (140 + 180) = 320.

It is second lowest in Punjab.

7. (Trees planted by C in Tamil Nadu) – (Trees planted by A in Haryana) = (160 – 80) = 80.

8. Average number of trees planted in Haryana by 3 NGOs

$$= \frac{1}{3}(80 + 140 + 167) = \frac{387}{3} = 129.$$

9. Required% $= \left\{\frac{(100+60)}{(80+88)}\times 100\right\}\%$

$$= \left(\frac{160}{168}\times 100\right)\%$$

$$= \frac{2000}{21} = 95\% \text{ (approx.)}$$

10. Required ratio = 180 : 120 : 150 = 6 : 4 : 5.

11. Clearly, Export > Import only when $\frac{\text{Import}}{\text{Export}} < 1$.

From the graph it is clear that the above ratio is less than 1 in the years 2005, 2006, 2007 and 2010.

Thus (Imports : Exports) < 1 in four years.

12. The imports are minimum proportionate to exports means (value of import) : (value of export) should have minimum value.

Clearly, this ratio has a minimum value of 0.35 in 2007.

13. From graph, we find that the ratio of value of import to the value of export in 2006 is 0.85.

Let the value of export in 2006 be ₹ x crores. Then,

$$\frac{272}{x} = 0.85 \Rightarrow x = \frac{272}{0.85} = \left(\frac{272 \times 100}{85}\right) = 320.$$

Hence, the value of exports in 2006 was ₹ 320 crores.

14. The graph gives only the ratio of value of imports and that of exports. In order to find the percentage increase in imports from 2007 to 2008, we require the value of import or that of export during these years.

So, we cannot find the percentage increase in imports.

Hence, the data is inadequate to answer the question.

15. Let the value of export in 2008 be ₹ x crores.

Then, the value of export in 2009 = ₹ (500 – x) crores.

$$\frac{250}{x} = 1.25 \Rightarrow x = \frac{250}{1.25} = \left(\frac{250 \times 100}{125}\right) = 200.$$

∴ Export in 2008 = ₹ 200 crores.

Export in 2009 = ₹ (500 – 200) crores = ₹ 300 crores.

Let the value of import in 2009 be ₹ y crores.

Then,

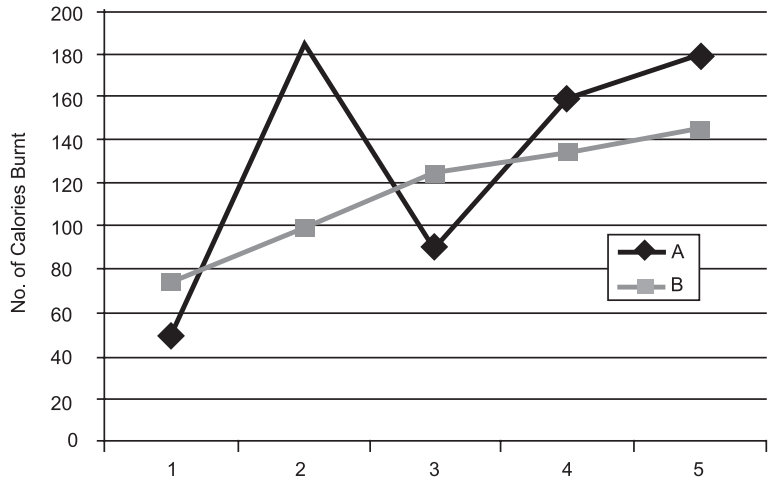
$$\frac{y}{300} = 1.40 \Rightarrow y = (1.40 \times 300) = \left(\frac{140}{100} \times 300\right) = 420.$$

Hence, the value of import in 2009 was ₹ 420 crores.

EXERCISE – III

Directions (*Questions 1-5*): *Refer to the graph and answer the given questions*

Data Related to Number of Calories Burned by Two Individuals (A and B) on Treadmill During 5 Days



	Monday	Tuesday	Wednesday	Thursday	Friday
A	50	185	90	160	180
B	75	100	125	135	145

1. What is the respective ratio of total number of calories burned by A and B together on Wednesday and the by the same individuals together on Tuesday?

[IBPS—RRB (Off. Gr. 'B') Exam, 2015]

(*a*) 45 : 59 (*b*) 43 : 57

(*c*) 41 : 57 (*d*) 43 : 61

(*e*) 47 : 61

2. If the number of calories burned by A and B increased by 10% and 20% respectively from Friday to Saturday, what was the total number of calories burned by them together on Saturday?

[IBPS—RRB (Off. Gr. 'B') Exam, 2015]

(*a*) 378 (*b*) 372

(*c*) 368 (*d*) 384

(*e*) 364

3. What is the total number of calories burned by A on Tuesday, Wednesday and Thursday together?

[IBPS—RRB (Off. Gr. 'B') Exam, 2015]

(*a*) 425 (*b*) 440
(*c*) 430 (*d*) 445
(*e*) 435

4. If the average number of calories burned by B on Thursday, Friday and Saturday together is 125, what was the number of calories burned by B on Saturday?

[IBPS—RRB (Off. Gr. 'B') Exam, 2015]

(*a*) 110 (*b*) 95
(*c*) 115 (*d*) 90
(*e*) 105

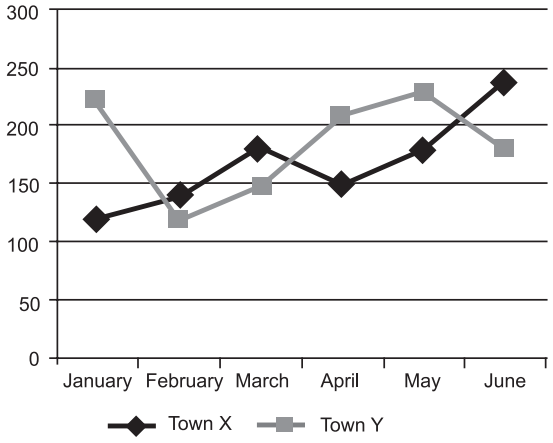
5. Number of calories burned by B increased by what percent from Monday to Thursday?

[IBPS—RRB (Off. Gr. 'B') Exam, 2015]

(*a*) 80% (*b*) 60%
(*c*) 70% (*d*) 75%
(*e*) 65%

Directions (*Questions 6–10*): *Refer to the graph and answer the given questions:*

Number of watches of 'PQR' brand sold in Town X and Y in 6 different Months



Town X	120	140	180	150	180	240
Town Y	220	120	150	210	230	180

6. What is the average number of watches sold in Town X in January, February, March and June?

[IBPS—Bank Spl. Officer (IT) Exam, 2015]

(*a*) 180 (*b*) 190
(*c*) 175 (*d*) 170
(*e*) 185

7. The number of watches sold in Town Y in April is what per cent more than the number of watches sold in Town X in the same month?

[IBPS—Bank Spl. Officer (IT) Exam, 2015]

(*a*) 42% (*b*) 40%
(*c*) 30% (*d*) 50%
(*e*) 38%

8. The number of watches sold in Town Y increased by what per cent from February to May?

[IBPS—Bank Spl. Officer (IT) Exam, 2015]

(*a*) 96% (*b*) $92\frac{1}{3}\%$
(*c*) 97% (*d*) $91\frac{2}{3}\%$
(*e*) $95\frac{2}{3}\%$

9. The number of watches sold in Town X in July was 10% more than the number of watches sold in the same town in May. What is the ratio of the number of watches sold in July to that sold in January in the same town?

[IBPS—Bank Spl. Officer (IT) Exam, 2015]

(*a*) 34 : 23 (*b*) 32 : 25
(*c*) 31 : 20 (*d*) 33 : 23
(*e*) 33 : 20

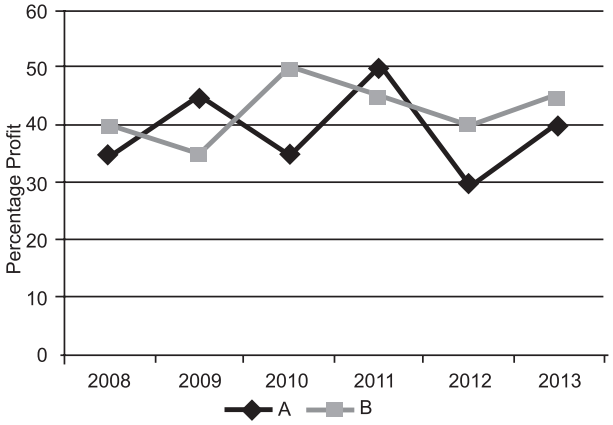
10. What is the difference between the total number of watches sold in both the towns together in June and the total number of watches sold in both the towns together in March?

[IBPS—Bank Spl. Officer (IT) Exam, 2015]

(*a*) 50 (*b*) 90
(*c*) 60 (*d*) 70
(*e*) 80

Directions (*Questions 11–15*): *Study the following graph carefully and answer the questions given below it.*

Percentage profit earned by two companies A and B over the six years.



A	25	45	35	50	30	40
B	40	35	50	45	40	45

11. Expenditure of company B in 2009 and 2010 are ₹ 12 lakhs and ₹ 14.5 lakhs respectively. What was the total income of company B in 2009 and 2010 together (in lakh rupees)?

[IDBI Bank (Executive Officer's) Exam, 2015]

(*a*) 39.75 (*b*) 37.95
(*c*) 38.75 (*d*) 38.55
(*e*) None of these

12. Ratio of expenditures of company A and B in 2012 was 3 : 4 respectively. What was the respective ratio of their incomes in 2012?
[IDBI Bank (Executive Officer's) Exam, 2015]
(*a*) 21 : 26 (*b*) 13 : 14
(*c*) 14 : 13 (*d*) 26 : 21
(*e*) None of these

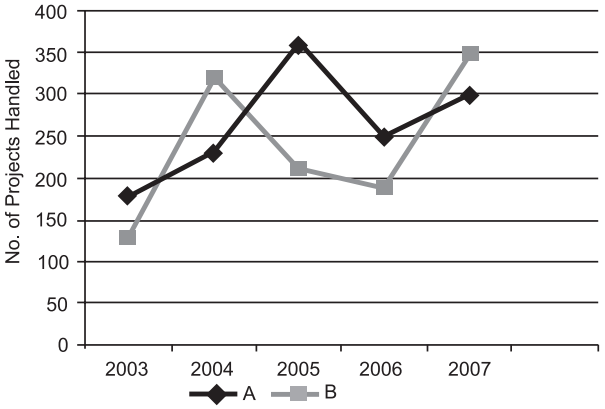
13. Total expenditure of company A in all the years together was 82.5 lakhs. What was the total income of the company A in all the years together?
[IDBI Bank (Executive Officer's) Exam, 2015]
(*a*) 1.23 crores (*b*) 98.75 crores
(*c*) 99.85 crores (*d*) Cannot be determined
(*e*) None of these

14. If the expenditure of company A and B in 2013 were equal and the total incomes of the two companies was ₹ 5.7 lakhs. What was the total expenditure of the two companies in 2013?
[IDBI Bank (Executive Officer's) Exam, 2015]
(*a*) 4 lakhs (*b*) 2 lakhs
(*c*) 4.2 lakhs (*d*) Cannot be determined
(*e*) None of these

15. If the income of company B in 2010 and 2011 were in the ratio of 2 : 3 respectively, what was the respective ratio of expenditures of that company in these two years?
[IDBI Bank (Executive Officer's) Exam, 2015]
(*a*) 20 : 29 (*b*) 9 : 10
(*c*) 29 : 45 (*d*) 10 : 29
(*e*) None of these

Directions ***(Questions 16–20): Refer to the graph and answer the given questions:***

Data related to the number of projects handled by two companies A and B over 5 years.



16. Out of the total number of projects handled by Company A in 2005 and 2006 together, 20% were governmental projects. What was the total number of governmental projects handled by Company A in 2005 and 2006 together?
[IBPS—RRBs (Off. Gr. 'B') Exam, 2015]
(*a*) 108 (*b*) 132
(*c*) 128 (*d*) 116
(*e*) 122

17. The projects handled by a company can be broadly classified into two types: governmental projects and non-governmental projects. If the average number of non-governmental projects handled by the same company B in 2003 and 2004 Is 127. What is the total number of governmental projects handled by the same company in 2003 and 2004 together?
[IBPS—RRBs (Off. Gr. 'B') Exam, 2015]
(*a*) 204 (*b*) 188
(*c*) 192 (*d*) 196
(*e*) 212

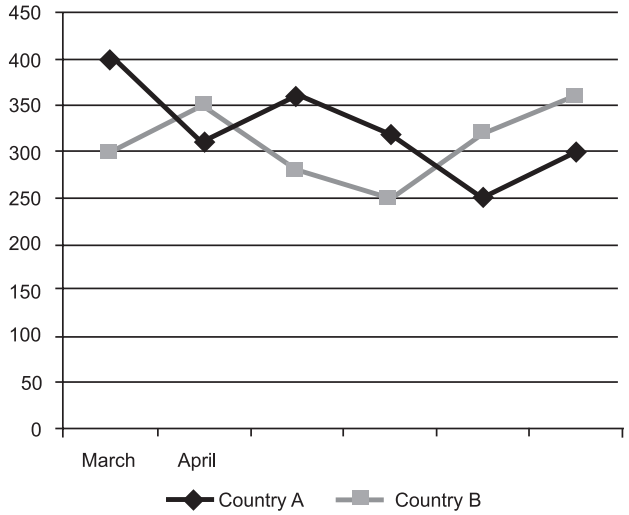
18. The number of projects handled by Company B decreased by what per cent from 2004 to 2006?
[IBPS—RRBs (Off. Gr. 'B') Exam, 2015]
(*a*) $35\frac{5}{8}$ (*b*) $30\frac{7}{8}$
(*c*) $50\frac{3}{8}$ (*d*) $45\frac{3}{8}$
(*e*) $40\frac{5}{8}$

19. If the number of projects handled by company A increased by 20% from 2007 to 2008 and by 5% from 2008 to 2009, what was the number of projects handled by Company A in 2009?
[IBPS—RRBs (Off. Gr. 'B') Exam, 2015]
(*a*) 378 (*b*) 372
(*c*) 384 (*d*) 396
(*e*) 368

20. What is the difference between the total number of projects handled by company A in 2003 and 2004 together and the total number of projects handled by Company B in 2005 and 2007 together?
[IBPS—RRBs (Off. Gr. 'B') Exam, 2015]
(*a*) 120 (*b*) 150
(*c*) 130 (*d*) 180
(*e*) 170

Directions ***(Questions 21–25): Read the graph and answer the given questions.***

Number of visas issued by Country 'XYZ' for Country A and Country B in 6 different months.



Country A	400	310	360	320	250	300
Country B	300	350	280	250	320	360

21. What is the difference between the total number of visas issued for Country A and Country B together in April and the total number of visas issued for both the countries together in June?

[IBPS Bank PO/MT CWE-V (Pre.) Exam, 2015]

(*a*) 90 (*b*) 70
(*c*) 110 (*d*) 100
(*e*) 80

22. What is the average number of visas issued for Country B in March, May, July and August?

[IBPS Bank PO/MT CWE-V (Pre.) Exam, 2015]

(*a*) 315 (*b*) 310
(*c*) 320 (*d*) 335
(*e*) 325

23. The number of visas issued for Country A in March decreased by 20% from the previous month. What is the respective ratio between the number of visas issued for Country A in February and the number of visas issued for the same country in May?

[IBPS Bank PO/MT CWE-V (Pre.) Exam, 2015]

(*a*) 25 : 13 (*b*) 25 : 18
(*c*) 26 : 13 (*d*) 24 : 13
(*e*) 26 : 15

24. The number of visas issued for Country A decreased by what percent from May to July?

[IBPS Bank PO/MT CWE-V (Pre.) Exam, 2015]

(*a*) $35\frac{1}{3}$ (*b*) 33
(*c*) $30\frac{9}{5}$ (*d*) $32\frac{2}{3}$
(*e*) $32\frac{4}{9}$

25. The number of visas issued for Country B in March is what percent less than the number of visas issued for Country A in June?

[IBPS Bank PO/MT CWE-V (Pre.) Exam, 2015]

(*a*) 8.5 (*b*) 7.75
(*c*) 4.25 (*d*) 6.25
(*e*) 5.75

ANSWERS

1. (*b*)	**2.** (*b*)	**3.** (*e*)	**4.** (*b*)	**5.** (*a*)	**6.** (*d*)	**7.** (*b*)	**8.** (*d*)	**9.** (*e*)	**10.** (*b*)
11. (*b*)	**12.** (*e*)	**13.** (*d*)	**14.** (*a*)	**15.** (*c*)	**16.** (*e*)	**17.** (*d*)	**18.** (*e*)	**19.** (*a*)	**20.** (*b*)
21. (*a*)	**22.** (*a*)	**23.** (*b*)	**24.** (*c*)	**25.** (*d*)					

SOLUTIONS

1. Total number of calories burnt by A and B together on Wednesday = 90 + 125 = 215
Total number of calories burnt by A and B together on Tuesday = 185 + 100 = 285
Required ratio = 215 : 285 = 43 : 57

2. Total number of calories burnt on Saturday
$=180 \times \frac{110}{100} + 145 \times \frac{120}{100}$
= 198 + 174 = 372

3. Total number of calories burnt by
A = 185 + 90 + 160 = 435

4. Average calories = 125 Total calories = 3 × 125 = 375
Number of calories burnt on Saturday = 375 – 280 = 95

5. Required percentage = $\frac{60}{75} \times 100 = 80\%$

6. Total Number of watches sold in Town X in January, February, March and June = 120 + 140 +180 + 240 = 680
Required average = $\frac{680}{4} = 170$

7. The number of watches sold in Town Y in April = 210
The number of watches sold in Town X in April = 150
Required percentage = $\frac{210-150}{150} \times 100 = \frac{60}{150} \times 100 = 40\%$

8. Number of Watches sold in Town Y in February = 120
Number of Watches sold in Town Y in May = 230

Required percentage increase

$= \frac{230-120}{120}\times 100 = \frac{110}{120}\times 100 = \frac{110\times 5}{6}$

$= \frac{275}{3} = 91\frac{2}{3}\%$

9. Number of watches sold in Town X in the month of May = 180

Number of watches sold in Town X in the month of July

$= \frac{180\times 110}{100} = 198$

Number of watches sold in Town X in the month of January = 120

$\therefore$ Required ratio $= \frac{198}{120} = \frac{33}{20} = 33:20$

10. Total number of watches sold in both the towns together in the month of June = 240 + 180 = 420

Total number of watches sold in both the towns together in March = 180 + 150 = 330

Required difference = 420 – 330 = 90

11. Profit percent earned by company B in 2009 = 35%

Profit percent earned by company B in 2010 = 50%

Expenditure of company B in 2009 = 12 lakhs

Expenditure of company B in 2010 = 14.5 lakhs

Income of company B in 2009 = 35% $= \frac{I-E}{E}\times 100$

$\Rightarrow 35 = \frac{(I-12\text{ lakh})}{12\text{ lakh}} \times 100$

$\Rightarrow$ (35 × 12) Lakh = 100I – 1200 lakh

$\Rightarrow$ 420 lakh = 100I – 1200 lakh

$\Rightarrow$ I = 16.20 lakh

Income of company B in 2009 = 50% $= \frac{I-E}{E} \times 100$

$\Rightarrow 50 = \frac{I-14.5\text{ lakh}}{14.5\text{ lakh}}\times 100$

$\Rightarrow$ (50 × 14.5) lakh = 100I – 14.50 lakh

$\Rightarrow$ 2175 = (100) I $\Rightarrow$ I = 21.75 lakhs

So, total income of company B in 2009 and 2010

= 16.2 + 21.75

= ₹ 37.95 Lakhs

12. For company A, In 2012

P% $= \frac{I-E}{E} \times 100$

$\Rightarrow 30 = \frac{I-3}{3} \times 100$

$\Rightarrow$ 90 = 100 I – 300

$\Rightarrow \frac{390}{100} = I$

$\Rightarrow I = 3.9$

For company B, in 2012

P% $= \frac{I-E}{E} \times 100$

40 = v

$\Rightarrow$ 160 = 100 I – 400

$\Rightarrow \frac{560}{100} = I$

$\Rightarrow I = 5.6$

Then required ratio $= \frac{3.9}{5.6} = \frac{39}{56}$

13. Solution cannot be determined because profit percentage of company A in all the years are not given.

14. Let the income of company A in 2013 = x

Let the income of company B in 2013 = (5.7 – x)

Expenditure of company A = Expenditure of Company B = E $\frac{40}{100} - \frac{x-E}{E}\times 100$

$\frac{x}{E} = 1.4$ .... (i) and $\frac{45}{100} = \frac{(5.7-x)-E}{E}$

$\Rightarrow \frac{5.7-x}{E} = 14.5$ ...(ii)

Divide equation (ii) by (i) we get

$\Rightarrow \frac{5.7-x}{E}\times\frac{E}{x} = \frac{145}{140}$

$\Rightarrow \frac{5.7x}{x} = \frac{145}{140}$

$\Rightarrow$ 5.7 × 140 – 140x = 145x

$\Rightarrow$ 798 = 285x

$\Rightarrow$ x = 2.8 lakhs

$\because \frac{x}{E} = 1.4$

E = 2 lakhs

Total expenditure of two companies

= (2 + 2) = 4 lakhs

15. In 2010, 50 $= \frac{2-E_1}{E_1}\times 100$

$\Rightarrow$ 50 E_1 = 200 – 100 E_1

$\Rightarrow$ 150 E_1 = 200

$\Rightarrow E_1 = \frac{4}{3}$

In 2011, 45 $= \frac{(3-E_2)}{E_2} \times 100$

$\Rightarrow$ 45 E_2 = 300 – 100 E_2

$\Rightarrow$ 145 E_2 = 300

$\Rightarrow E_2 = \frac{300}{145}$

Then, $\frac{E_1}{E_2} = \frac{4}{3}\times\frac{145}{300}$

$\Rightarrow \frac{E_1}{E_2} = \frac{29}{35}$

16. Number of governmental projects handled by company A in 2005 and 2006 together = 360 + 250 = 610

Number of Governmental projects handled by company A in 2005 and 2006 together = 20% of 610 $= \frac{20\times 610}{100} = 122$

17. Average number of non-governmental projects handled by company B = 127

Number of Non-Governmental projects handled by Company B in 2003 and 2004 is = 127 × 2 = 254

Number of Governmental projects handled by Company B in 2003 and 2004 together

= 130 + 320 − 254 = 40 − 254 = 196

18. Number of projects handled by Company B in 2004 = 320

Number of projects handled by Company B in 2006 = 190

Required decrease percentage = $\frac{320-190}{320}\times 100$

$= \frac{130}{320}\times 100 = \frac{1300}{32}\% = \frac{325}{8}$

$= 40\frac{5}{8}\%$ decrease

19. Number of projects handled by company A in 2008

= 120% of 300 = $\frac{120\times 300}{100} = 360$

Number of projects handled by Company A in 2009

= 105% of 360 = $\frac{105\times 360}{100} = 378$

20. The number of projects handled by company A in 2003 and 2004 together = 180 + 230 = 410

The number of projects handled by company B in 2005 and 2007 together = 210 + 350 = 560

Required difference = 560 − 410 = 150

21. Visas issued for country A and country B in April

= 310 + 350 = 660

Visas issued for country A and country B in June

= 320 + 250 = 570

Required difference

= 660 − 570 = 90

22. Total number of visas issued for country B in March, May, July and August

= 300 + 280 + 320 + 360 = 1260

Required average = $\frac{300+280+320+360}{4}$

$= \frac{1260}{4} = 315$

23. Number of visas for country A in February

$= \frac{400\times 100}{80} = 500$

∴ Required ratio = 500 : 360

= 25 : 18

24. Number of visas issued for country A in May = 360

Number of visas issued for country A in July = 250

Percentage decrease = $\frac{360-250}{360}\times 100$

$= \frac{1100}{36} = \frac{275}{9} = 30\frac{5}{9}\%$

25. Number of visas issued for country B in March = 300

Number of visas issued for country A in June = 320

Required percent = $\frac{320-300}{320}\times 100$