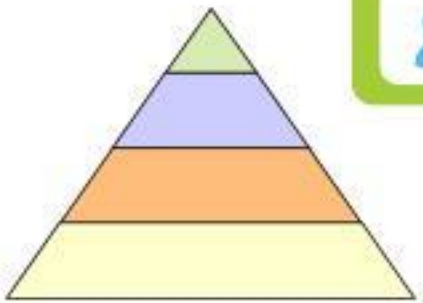
Data Interpretation

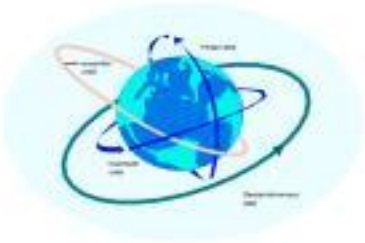
Includes……

Graphs

Charts



Diagrams & Figures



Tables

Name	Thread pitch (mm)	Minor diameter tolerance	Nominal diameter (mm)	Head shape	Price for 50 screws	Available at factory outlet?	Number in stock	Flat or Phillips head?
M4	0.7	4g	4	Pan	$10.08	Yes	276	Flat
M5	0.8	4g	5	Round	$13.89	Yes	183	Both
M6	1	5g	6	Button	$10.42	Yes	1043	Flat
M8	1.25	5g	8	Pan	$11.98	No	298	Phillips
M10	1.5	6g	10	Round	$16.74	Yes	488	Phillips
M12	1.75	7g	12	Pan	$18.26	No	998	Flat
M14	2	7g	14	Round	$21.19	No	235	Phillips
M16	2	6g	16	Button	$23.57	Yes	292	Both
M18	2.1	8g	18	Button	$25.87	No	664	Both
M20	2.4	8g	20	Pan	$29.09	Yes	486	Both
M24	2.55	9g	24	Round	$33.01	Yes	982	Phillips
M28	2.7	10g	28	Button	$35.66	No	1067	Phillips
M36	3.2	12g	36	Pan	$41.32	No	434	Both
M50	4.5	15g	50	Pan	$44.72	No	740	Flat

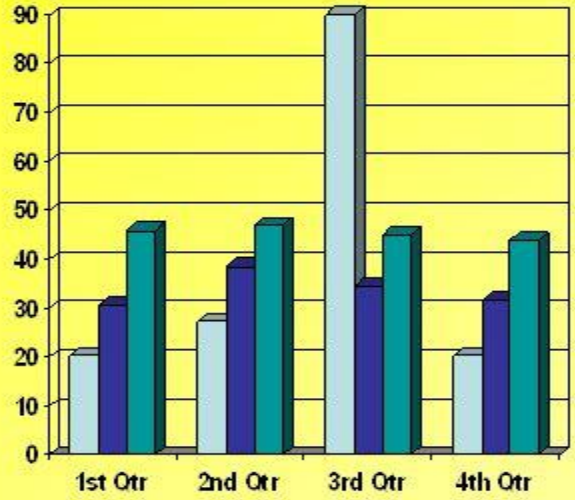
By – Rahul Agrahari

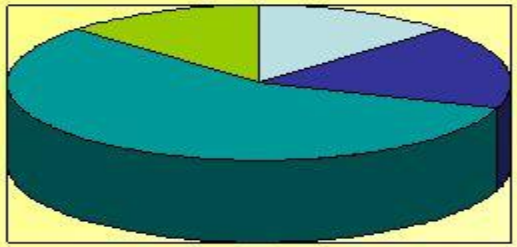
INTRODUCTION

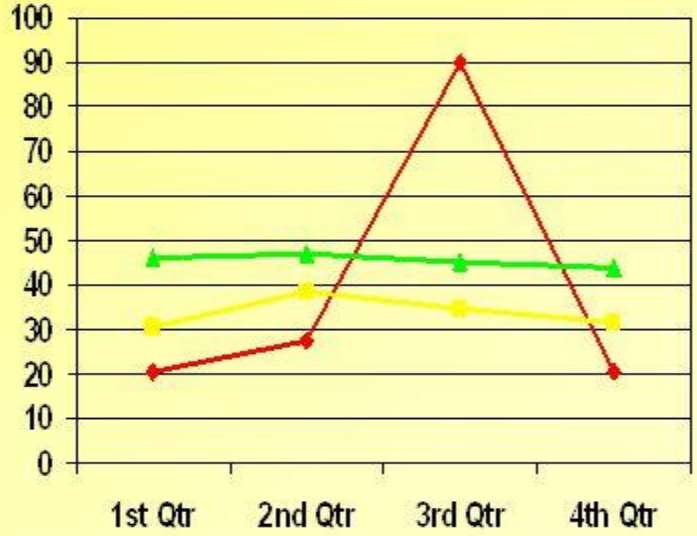
- Data interpretation is part of daily life for most people. Interpretation is the process of making sense of numerical data that has been collected, analyzed, and presented.
- A common method of assessing numerical data is known as **statistical analysis**, and the activity of analyzing and interpreting data in order to make predictions is known as **inferential statistics**.

TYPE OF CHART

What are they ?







1. Bar-chart

2. Pie-chart

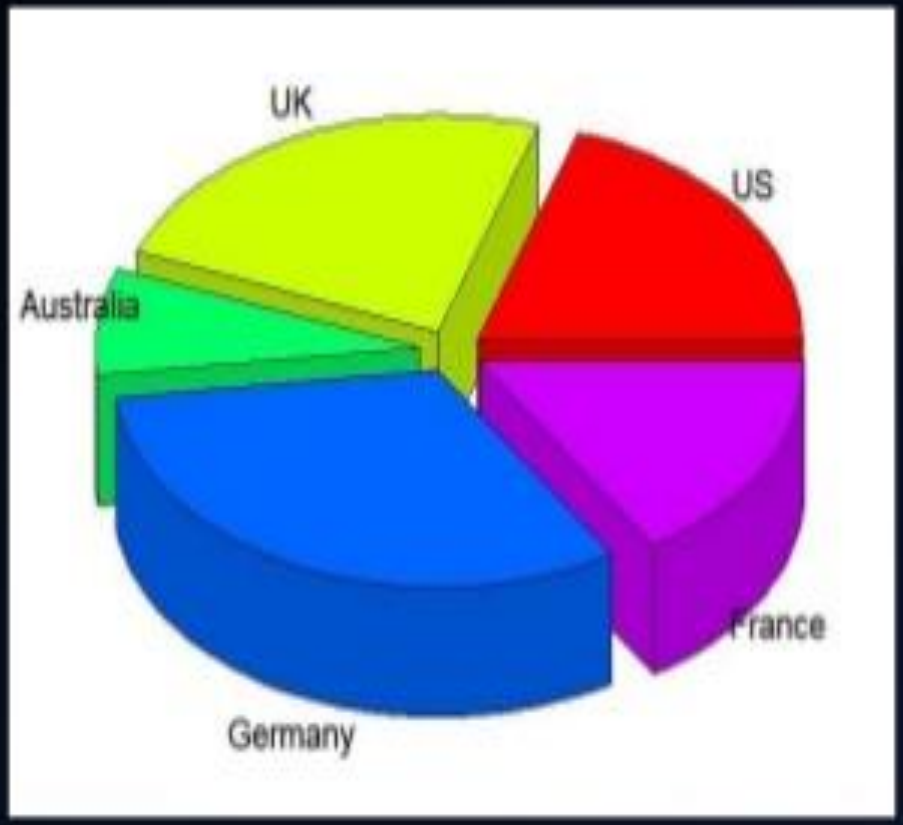
3. Graph

What Is Bar Chart?

A bar graph is a chart that uses either horizontal or vertical bars to show comparisons among categories.

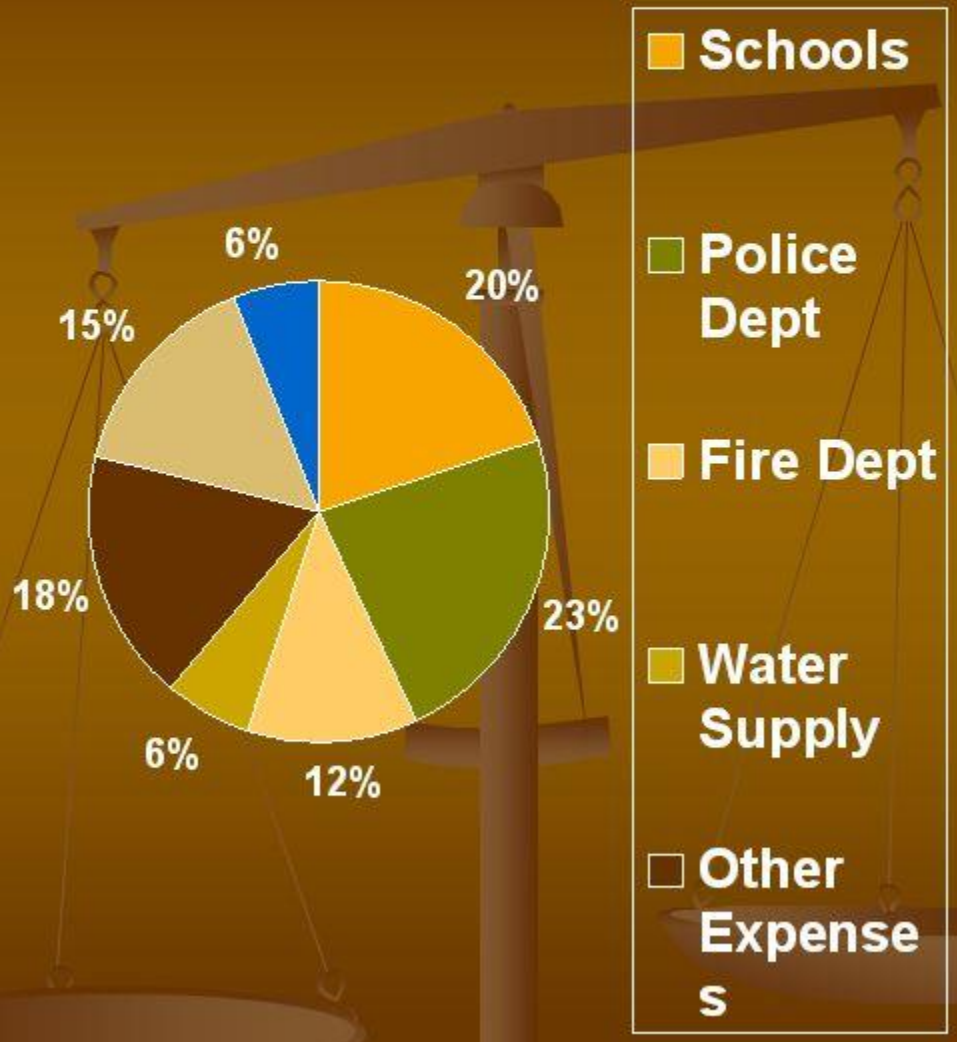
Pie chart:

A Pie Chart (or Pie Graph) is a circular chart divided into sectors, each sector shows the relative size of each value.



Data Interpretation

- Circle Graphs (Pie Charts)
  - This pie chart shows the percentage of its total expenditures that Weston spends on various types of expenses. Suppose you are given that the total expenses in 2004 were $10 million, and you are asked for the amount of money spent on the police dept and fire dept combined. You can see that together these two categories account for 23% + 12%, so 35% total. Therefore, 35% of $10 million is $3.5 million.



CONCEPT

Change = (Final value – Initial value)

Percentage Change

= [(Final value – Initial value)/Initial value]X 100

Note :- It will come out to be positive it means percentage increase (Growth rate) other wise decrease (decline rate).

CONCEPT

40 Change to 20

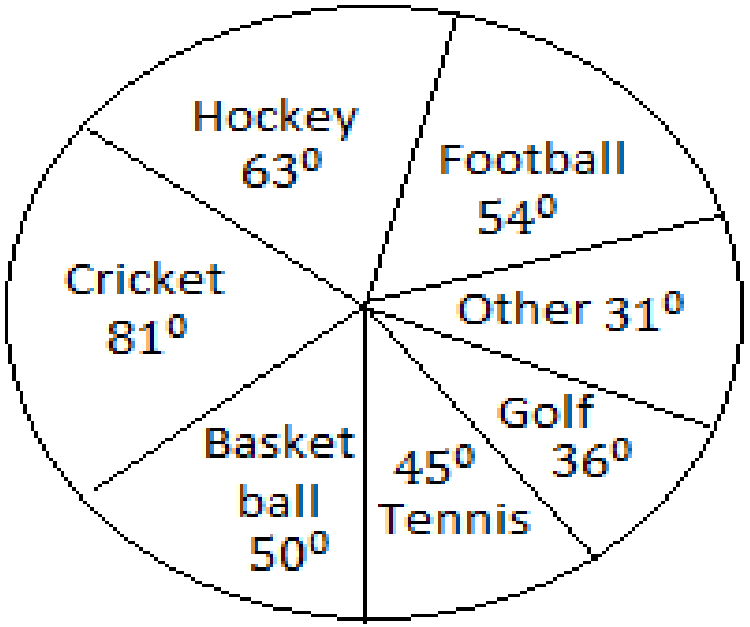
% Change = [(20 – 40)/20] X 100 = – 50 %

40 Change to 50

% Change = [(50 – 40)/40] X 100 = + 25%

QUESTION

Directions (Q. 1-Q.5): The pie-chart drawn here shows the spending of a country at various sports during particular years.



Q.1:- How much percent of the total spending is spent on tennis?

(a) 45% **(b) 22.5%**

(c) 12.5% **(d) 25%**

Q.2:- How much percent more is spent on hockey then that on Golf?

(a) 27% **(b) 35%**

(c) 37.5% **(d) 75%**

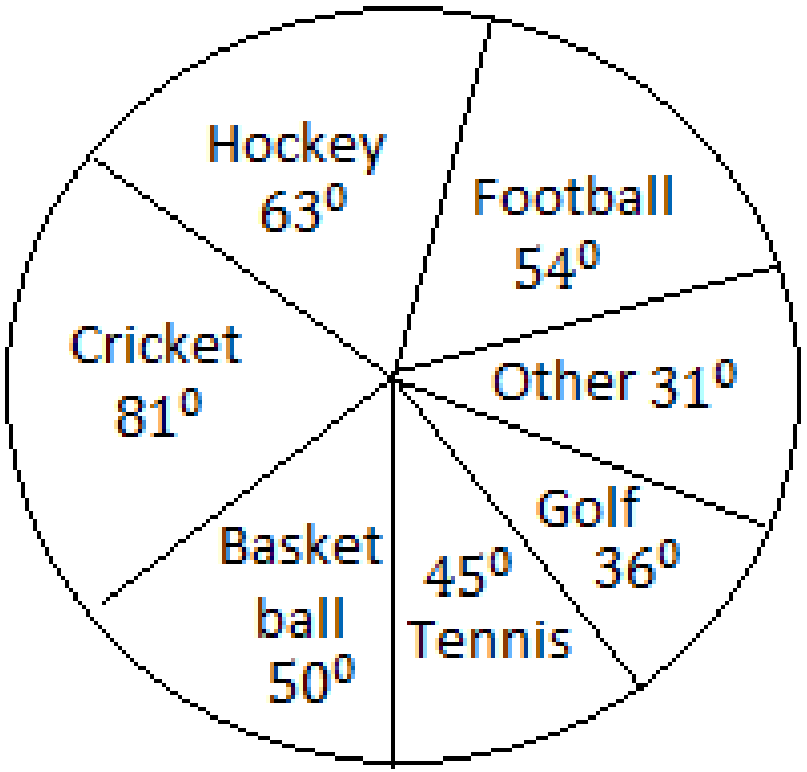
Q.3:- How much percent less is spent on Football than that on Cricket?

(a) 27% **(b) 33 (1/3)%**

(c) 33 (1/6)% **(d) 22 (2/9)%**

EXPLANATION

Pie Chart :-



1:- How much percent of the total spending is spent on tennis:-

= 45°/360° X 100 = 12.5%

2:- How much percent more is spent on hockey then that on Golf:-

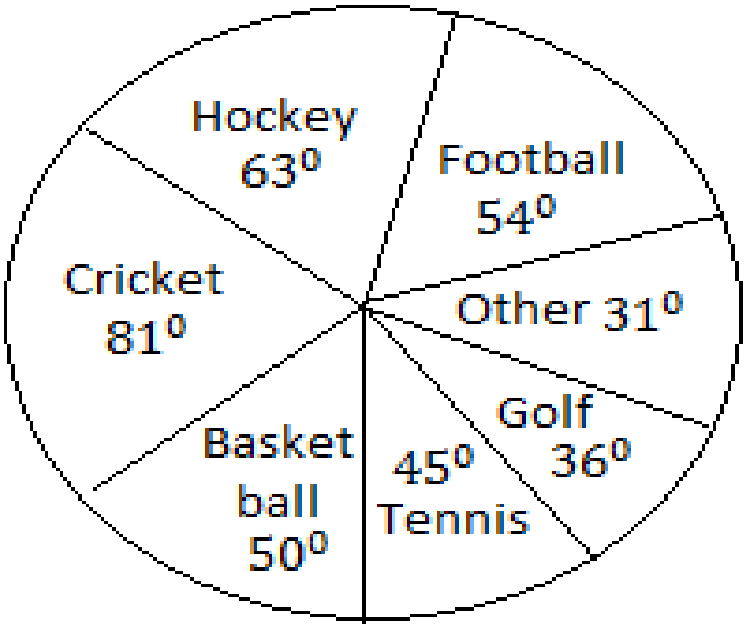
=(63°-36°)/36° X 100 = 75%

3:- How much percent less is spent on Football than that on Cricket:-

=(54°- 81°)/81° X 100 = -33.33%

QUESTION

Directions (Q. 1-Q.5): The pie-chart drawn here shows the spending of a country at various sports during particular years.



Q. 4 If the total amount spent on sports during the year was Rs 2 crore then the amount spent on cricket and hockey together was

(a) Rs 800,000 **(b) Rs 80, 00,000**

(c) Rs 16, 000 **(d) Rs 16, 00, 000**

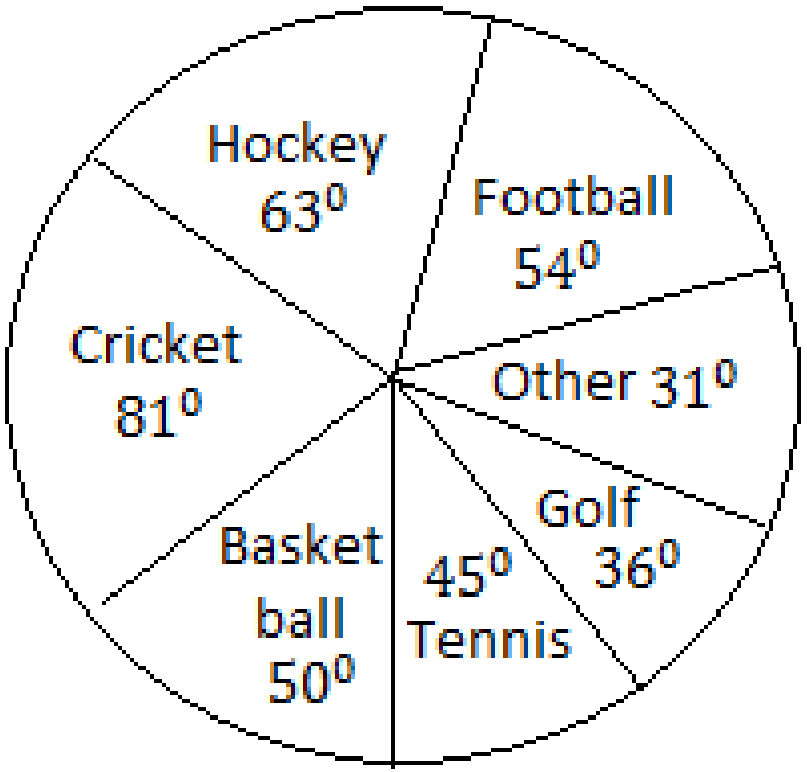
Q. 5 If the total amount spent on sports during the year is Rs 18,00,00,00. The amount spent on basketball exceeds tennis by

(a) Rs 250,000 **(b) Rs 360,000**

(c) Rs 375,000 **(d) Rs 40,10,000**

EXPLANATION

Pie Chart :-



4:- If the total amount spent on sports during the year was Rs 2 crore then the amount spent on cricket and hockey together was:-

Hockey and Cricket= (63° +81°)

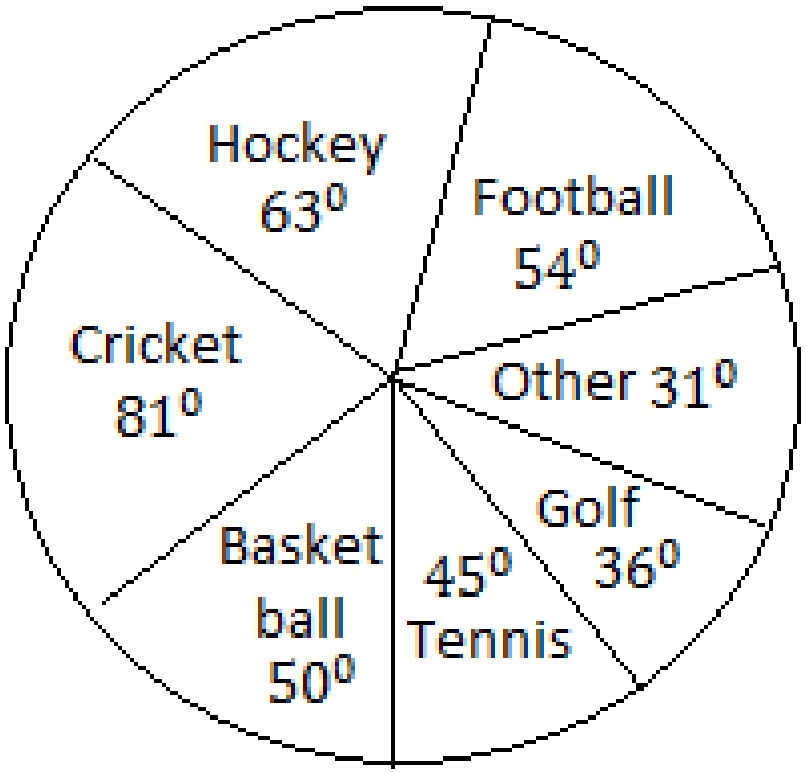
= 144°

144°/360° X 20000000

= 80,00,000

EXPLANATION

Pie Chart :-



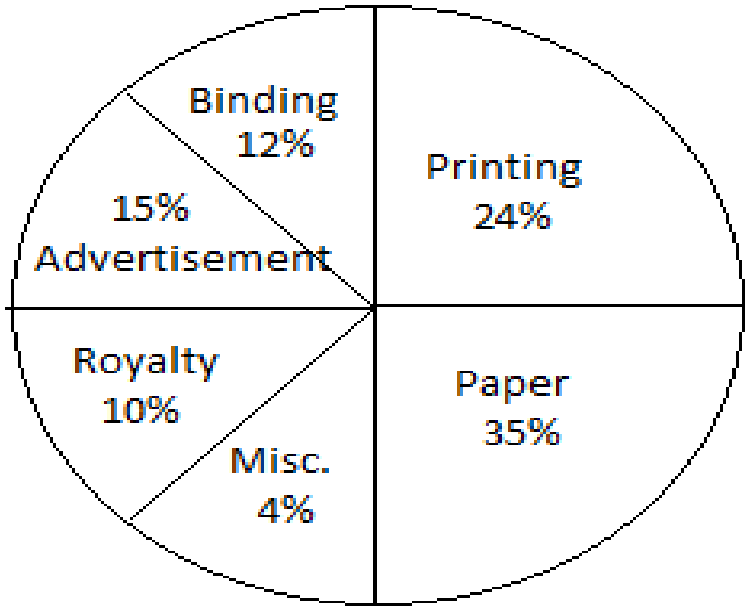
5:- If the total amount spent on sports during the year is Rs 18,00,00,00. The amount spent on basketball exceeds tennis by:-

(50° - 45°)/360° X 18,00,00,00

= 250,000

QUESTION

Directions (Q.6-Q.10): The pie chart given below shows the expenditure incurred in bringing out a book by a publisher.



Q.6:- What is the central angle of the sector of the cost of the paper?

(a) 140^0 **(b) 105^0**

(c) 122.5^0 **(d) 126^0**

Q.7:- If the cost of printing is Rs 94380 the royalty is

(a) Rs 47190 **(b) Rs 39325**

(c) Rs 31460 **(d) Rs 40960**

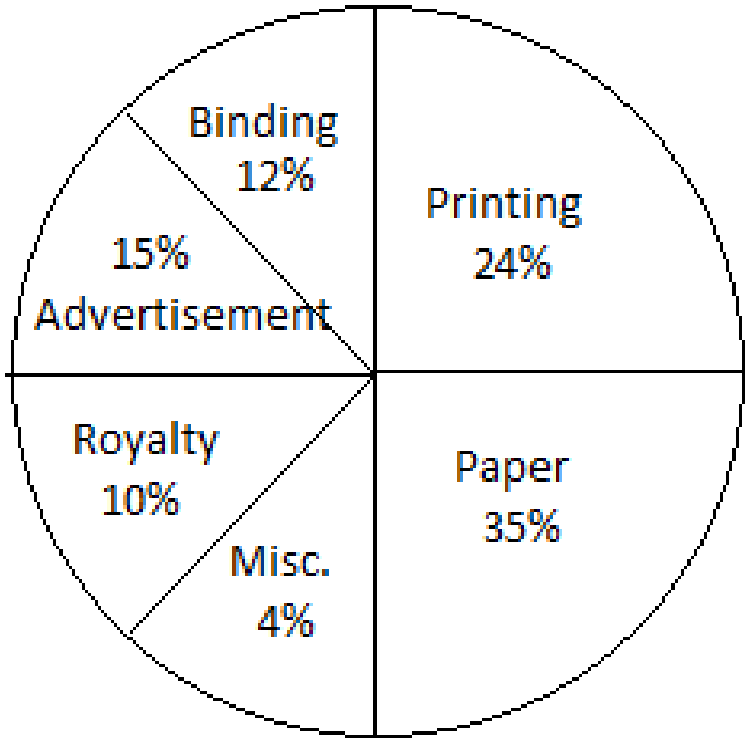
Q.8:- If the miscellaneous charges are Rs 15730, the advertisement charges are

(a) Rs 47190 **(b) Rs 37637.50**

(c) Rs 58987.50 **(d) Rs 68,190**

EXPLANATION

Pie Chart :-



Q.6:- What is the central angle of the sector of the cost of the paper:-

100% = 360°

35% = (360°/100) X 35 = 126°

Q.7:- If the cost of printing is Rs 94380 then royalty is:-

24% = 94380

10% = (94380/24) X 10 = 39325

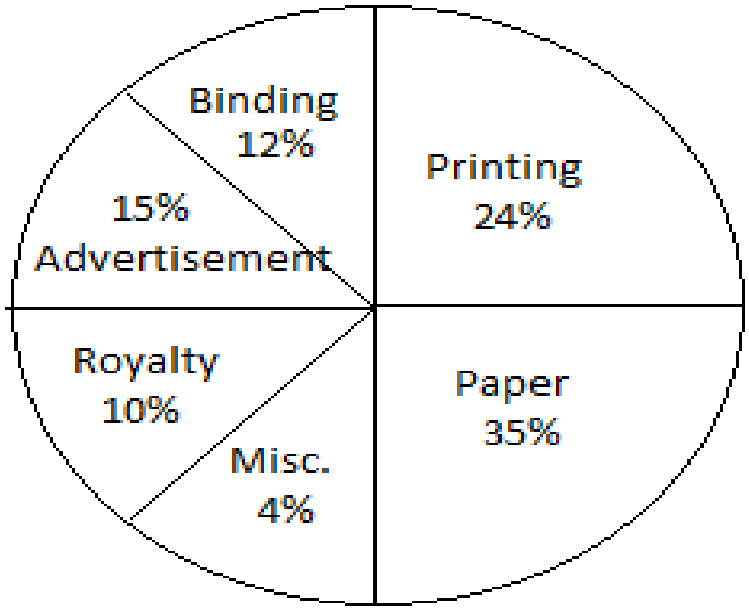
Q.8:- If the miscellaneous charges are Rs 15730, the advertisement charges are

4% = 15730

15% = (15730/4) X 15 = 58987.5

QUESTION

Directions (Q.6-Q.10): The pie chart given below shows the expenditure incurred in bringing out a book by a publisher.



Q. 9 Royalty on the book is less than the advertisement charges by

(a) 50% **(b) 33.33%**

(c) 26.14% **(d) 5%**

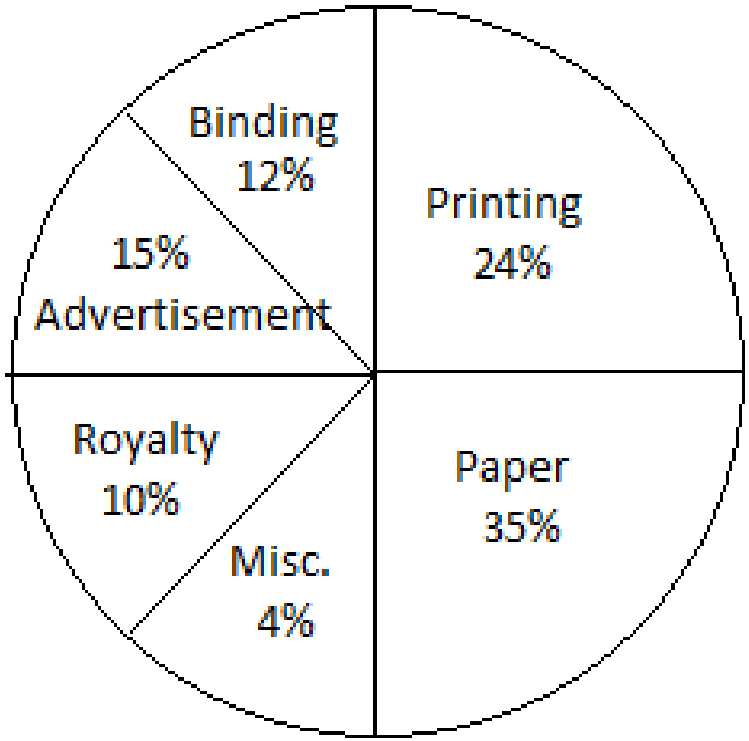
Q. 10 if 5500 copies are published and miscellaneous expenditure on them amount Rs 15,730 and the publisher earns a profit of 30%. Then market price of each copy is

(a) Rs 71.50 **(b) Rs 55**

(c) Rs 74.36 **(d) Rs 92.95**

EXPLANATION

Pie Chart :-



Q.9:- Royalty on the book is less than the advertisement charges by :-

(10% - 15%)/15% X 100 = 33.33%

Q.10:- If 5500 copies are published and miscellaneous expenditure on them amount Rs 15,730 and the publisher earns a profit of 30%. Then market price of each copy is :-

4% = 15730

100% = 15730/4 X 100 = 393250

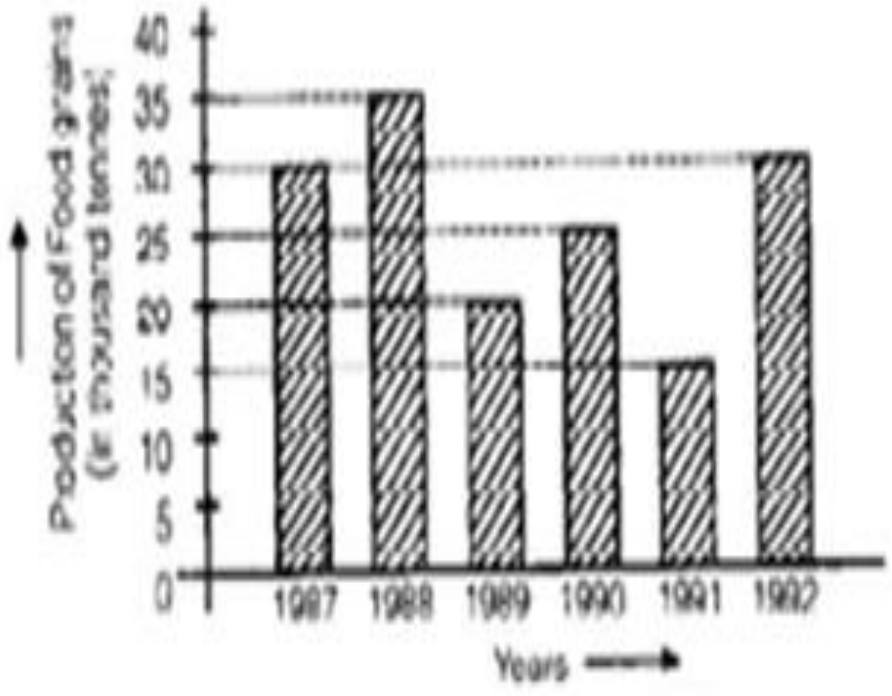
Cost of one copies = 393250/5500 = 71.5

Market Price = 71.5 X 1.3 = 92.95

QUESTION

Directions (Q.11-Q.13)

The following bar diagram shows the production of food grains of a country in different years



Q. 11 The percentage increase in production from 1991 to 1992 was

(a) 15% **(b) 30%**

(c) 50% **(d) 100%**

Q. 12 The sum of the production of food grains in the years 1989 and 1991 is same as that in the year

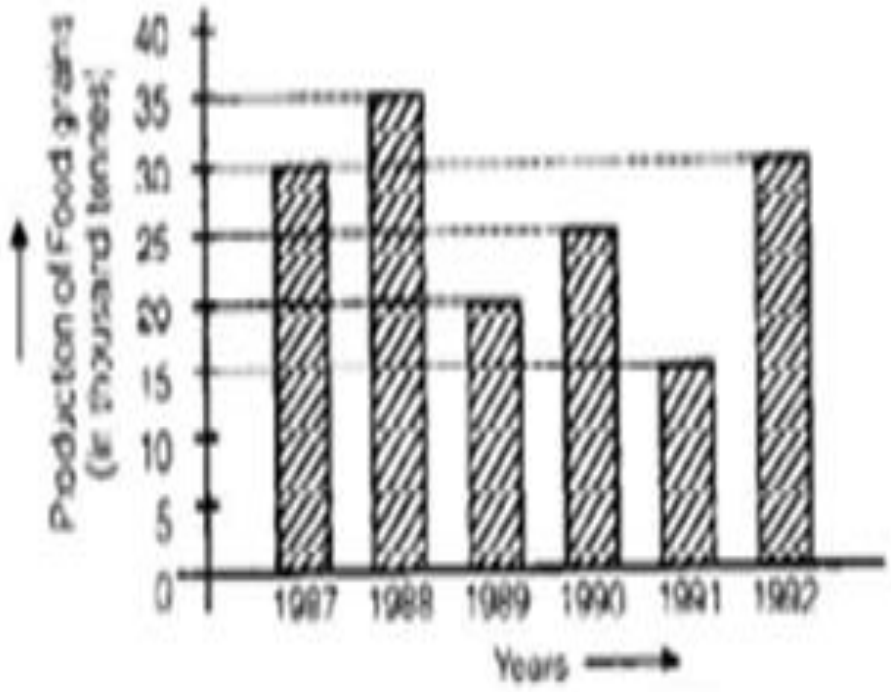
(a) 1987 **(b) 1988**

(c) 1990 **(d) 1992**

EXPLANATION

Directions (Q.11-Q.13)

The following bar diagram shows the production of food grains of a country in different years



Q. 11 The percentage increase in production from 1991 to 1992 was

[(30 – 15)/15] X 100 = 100%

Q. 12 The sum of the production of food grains in the years 1989 and 1991 is same as that in the year:-

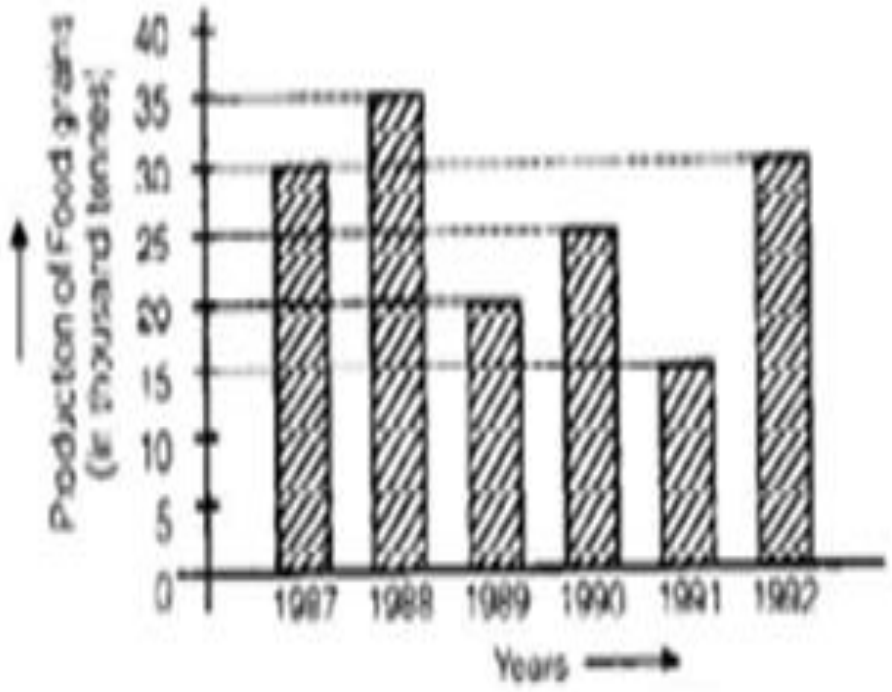
20 + 15 = 35

Same as the year of 1988.

QUESTION

Directions (Q.11-Q.13)

The following bar diagram shows the production of food grains of a country in different years



Q. 13 The two consecutive years in which rate of change of production of food grains is minimum are

(a) 1987 and 1988

(b) 1989 and 1990

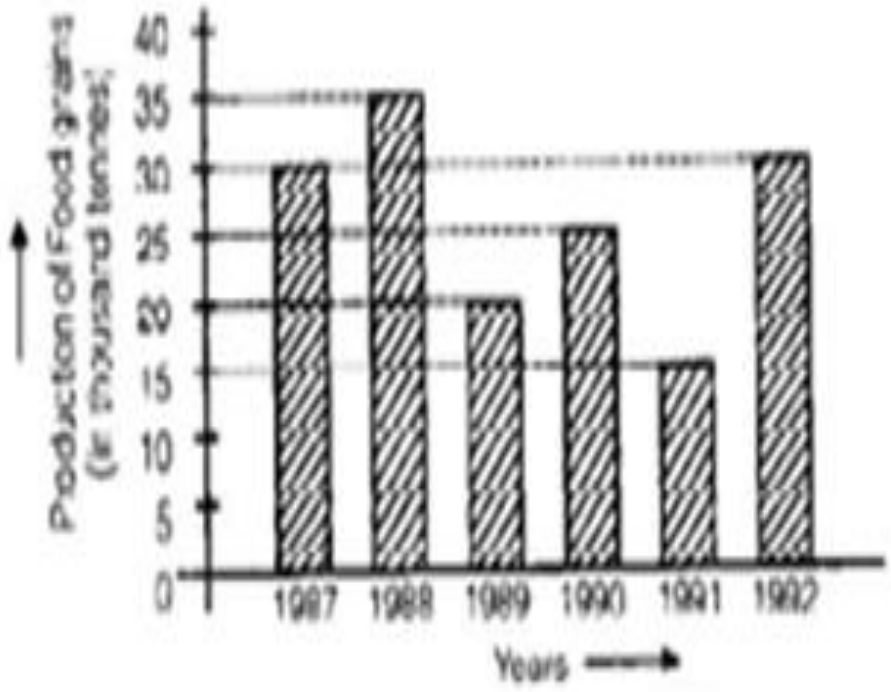
(c) 1990 and 1991

(d) 1991 and 1992

EXPLANATION

Directions (Q.11-Q.13)

The following bar diagram shows the production of food grains of a country in different years



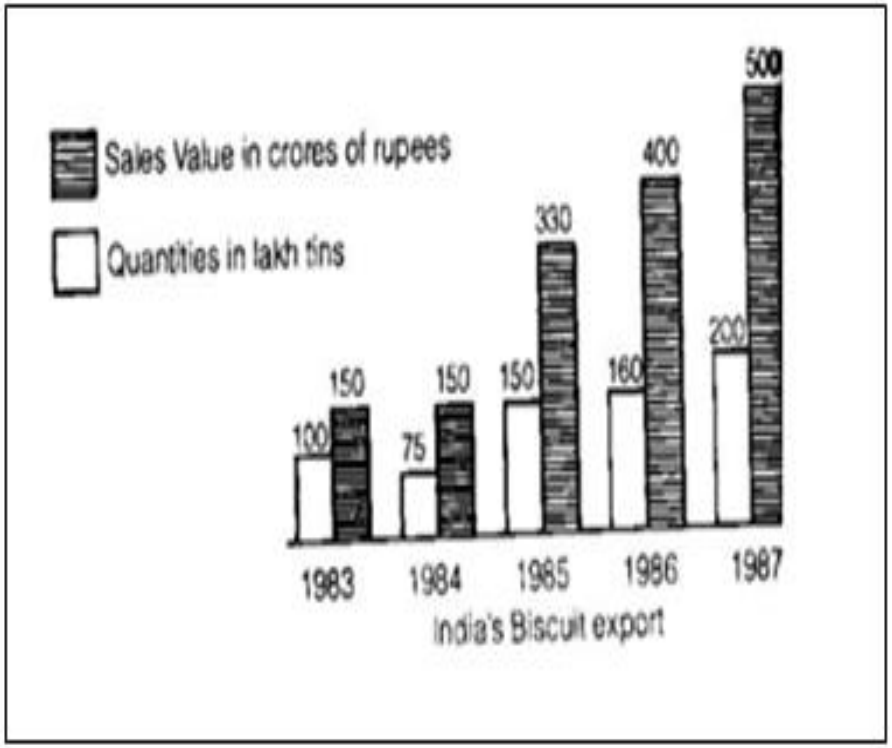
Q.13:- The two consecutive years in which rate of change of production of food grains is minimum are:-

Check 1987 to 1988:-

= [(35 – 30)/30] X 100 = 16.667%

QUESTION

Direction (Q. 14-Q. 15):- Study the following bar graph and answer the following



Q. 14 In which year the sales value per tin was minimum?

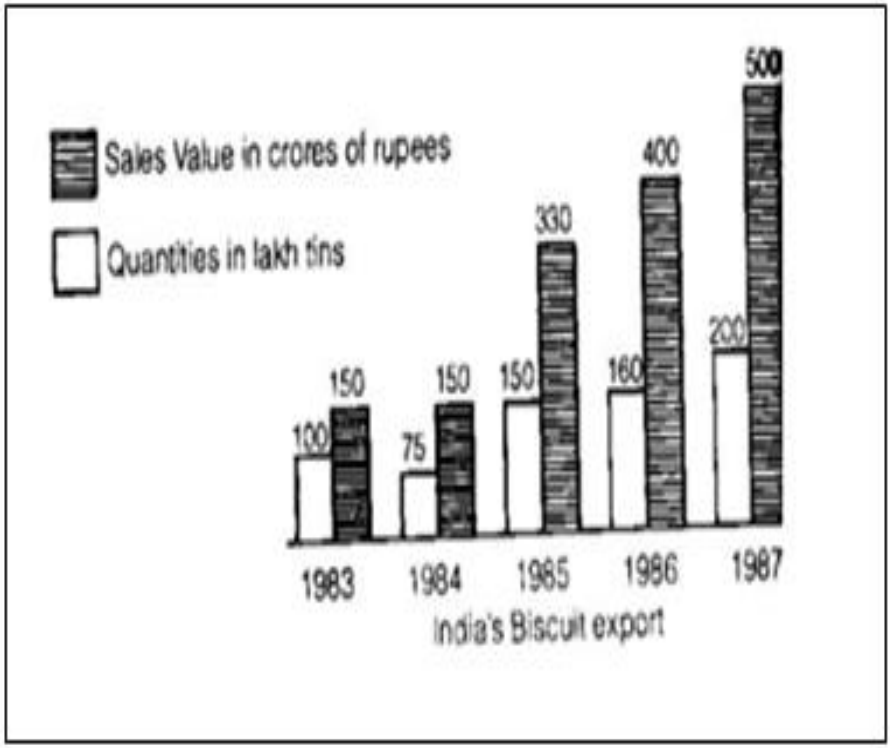
(a) 1983 **(b) 1984**
(c) 1985 **(d) 1986**

Q. 15 What was the approximate percent increase in sales value from 1983 to 1987?

(a) 350 **(b) 233.33**
(c) 133.33 **(d) 96**

EXPLANATION

Direction (Q. 14-Q. 15):- Study the following bar graph and answer the following



Q.14:- In which year the sales value per tin was minimum?

150/100 = 1.5 Minimum (1983)

Q.15:- What was the approximate percent increase in sales value from 1983 to 1987?

[(500 – 150)/150] X 100 = 233.33 %

QUESTION

Directions (Q. 16-Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q. 16 How many employees have their salary less than four times of their bonus?

(a) 0

(b) 1

(c) 2

(d) 3

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

EXPLANATION

Directions (Q. 16-Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.16:- How many employees have their salary less than four times of their bonus:-

Only one Employees N

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

QUESTION

Directions (Q. 16-Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.17:- The income from overtime is what percent of income from arrears in case of employees in category O?

(a) 80
(b) 25
(c) 70
(d) 60

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

EXPLANATION

Directions (Q. 16-Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.17:- The income from overtime is what percent of income from arrears in case of employees in category O:-

(6000/7500) x 100 = 80%

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

QUESTION

Directions (Q. 16-Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.18:- Who among the following employees earns maximum bonus in comparison to his total income?

(a) K
(b) L
(c) M
(d) N

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

EXPLANATION

Directions (Q.16 -Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.18:- Who among the following employees earns maximum bonus in comparison to his total income:- Check N

2400/21000 = 8/70

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

QUESTION

Directions (Q. 16-Q.19): Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.19:- Who among the following employees has maximum percentage of his salary out of the total income?

(a) K
(b) L
(c) M
(d) N

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

EXPLANATION

Directions (Q.16 -Q.19):- Study the following table and answer the following

Income of employees from different heads in different categories of a company

Q.19:- Who among the following employees has maximum percentage of his salary out of the total income:- Check M

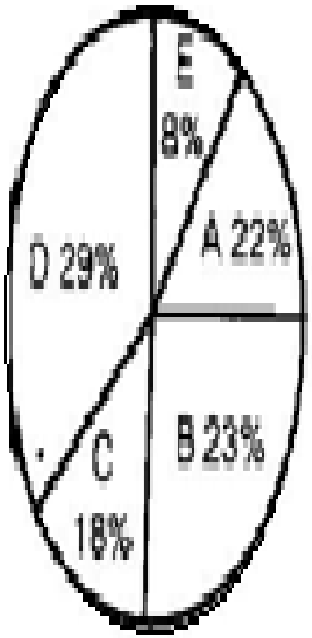
(21000/45000) X 100 = 46.6%

Source of income	Employees				
	K	L	M	N	O
Salary	12000	6000	21000	9000	12000
Bonus	2400	1200	4500	2400	3000
Over Time	5400	2100	6000	5100	6000
Arrear	6000	5400	12000	4200	7500
Misc.	1200	300	1500	300	1500
Total	27000	15000	45000	21000	30000

QUESTION

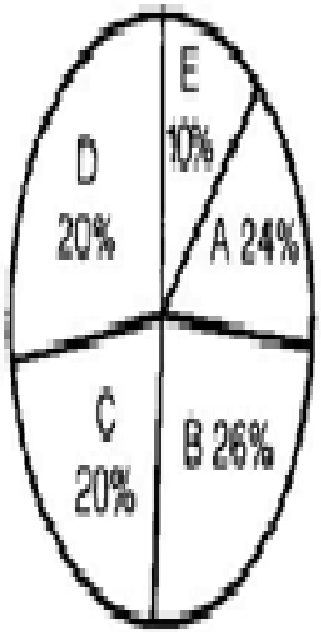
Year – 2005

(Total number of employes -1800)



Year - 2006

(Total number of employes – 20000)



Q.20:- Refer to the following pie charts:-

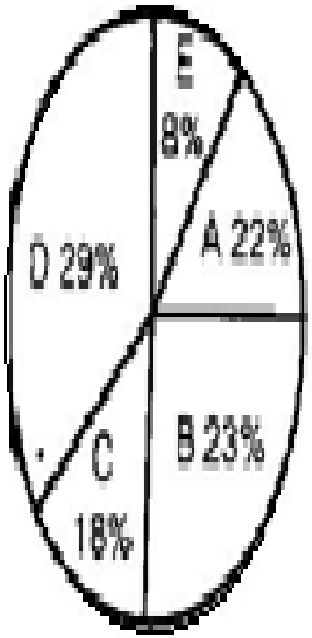
In which department is the percentage change (from 2005 to 2006) in number of employees maximum?

(a) A
(b) D
(c) B
(d) E

EXPLANATION

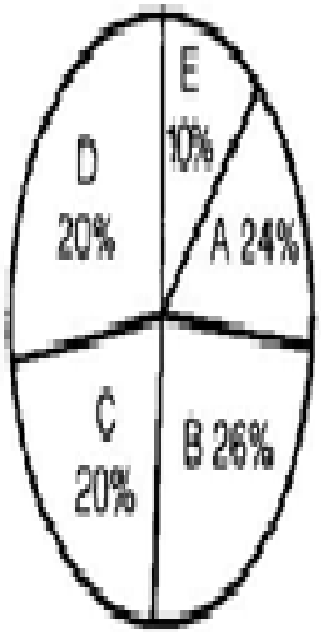
Year – 2005

(Total number of employes -1800)



Year - 2006

(Total number of employes – 20000)



Q.20:- Refer to the following pie charts:-

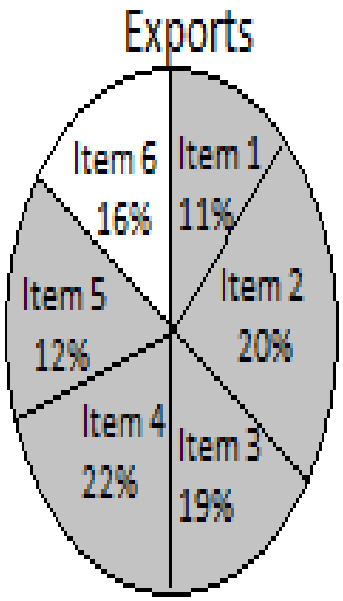
In which department is the percentage change (from 2005 to 2006) in number of employees maximum:-

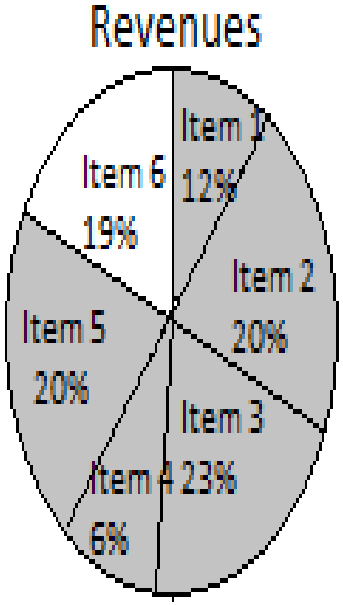
(10 – 8)/8X 100 = 25%

E

GATE-2014

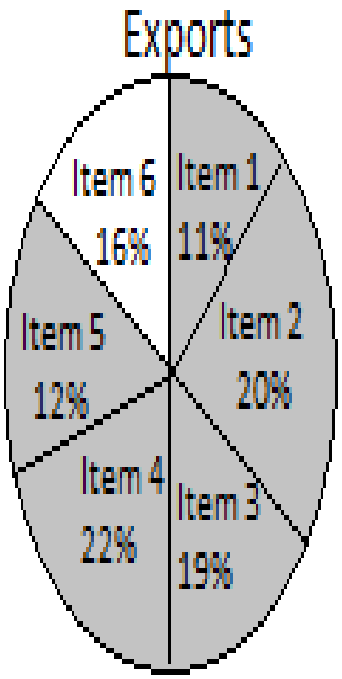
The total exports and revenues from the exports of the country are given in the two pie charts below. The pie chart for exports shows the quantity of each item as a percentage of the total quantity of exports, the pie chart for the revenues shows the percentage of the total revenue generated through export of each item. The total quantity of exports of all the items is 5 lakh tones and the total revenues ar 250 crore rupees. What is the ratio of the revenue generated through export of item 1 per kilogram to the revenue generated through export of item 4 per kilogram?

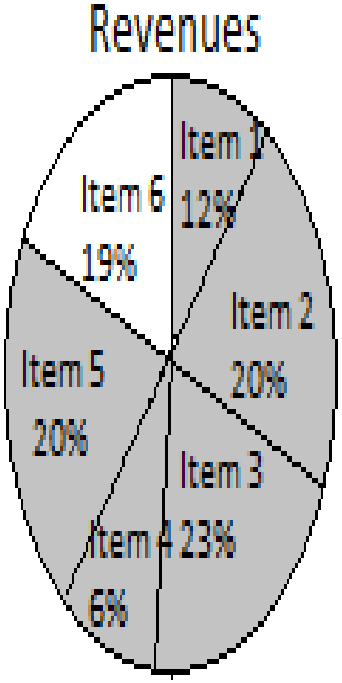




(a) 1 : 2
(b) 2 : 1
(c) 1 : 4
(d) 4 : 1

EXPLANATION





Total Exports = 5 Lakh Tonne

Total Revenues = 250 Crore

=(Item 1/kg)/ (Item 4/kg)

{250 X (12/100)/5 X 11/100}/

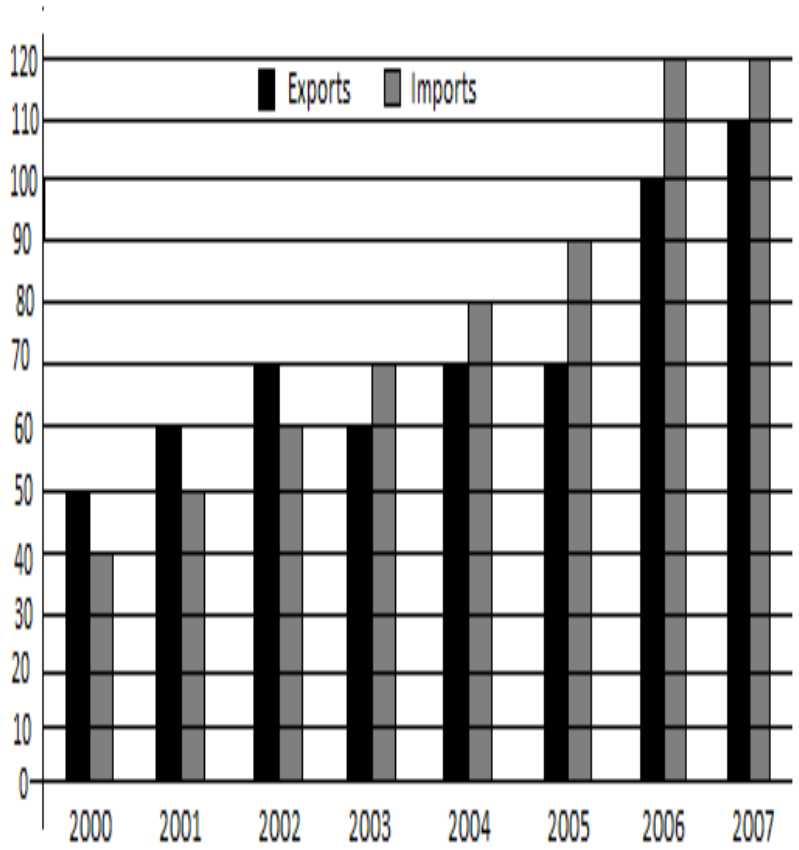
{(250 X 6/100)/(5 X 22/100)}

= 4:1

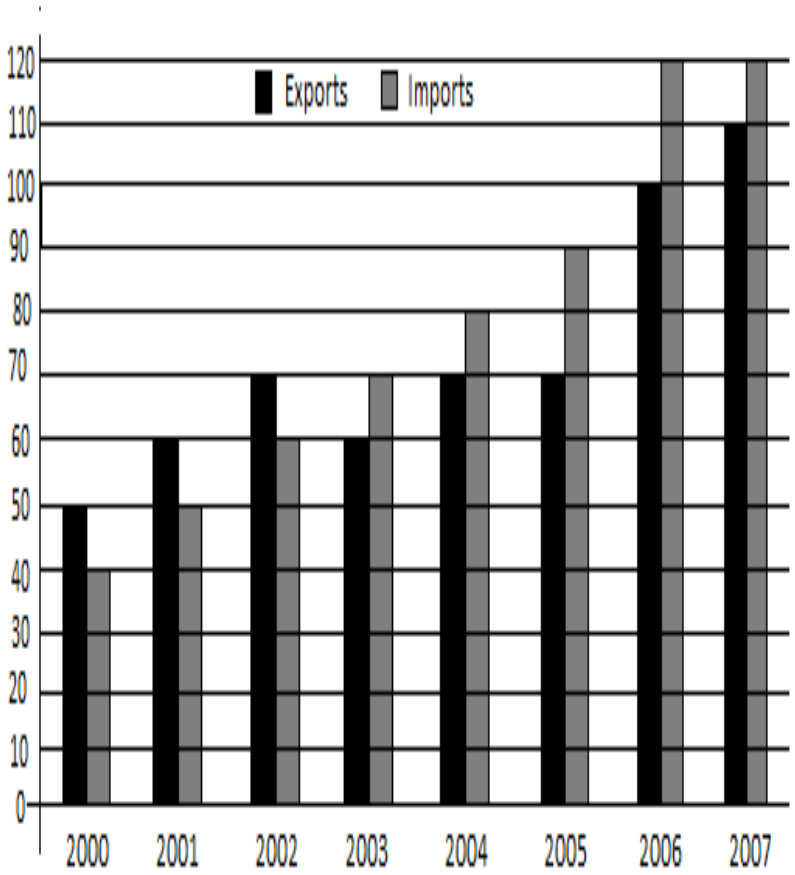
GATE-2015

The exports and imports (in crore of Rs. of a country from 2000 to 2007 are given in the following bar chart. if the trade deficit is defined as excess of imports over exports, in which year it is the trade deficit 1/5th of the exports?

(a) 2005
(b) 2004
(c) 2007
(d) 2006



EXPLANATION



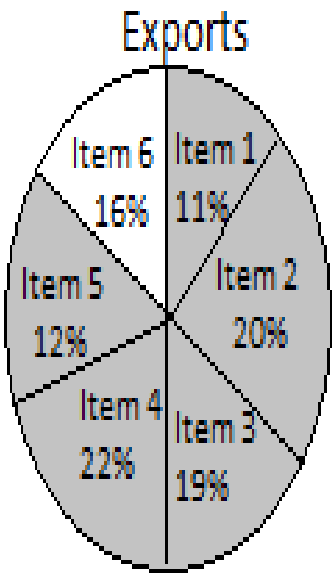
Trade deficit is defined as excess of imports over exports:-

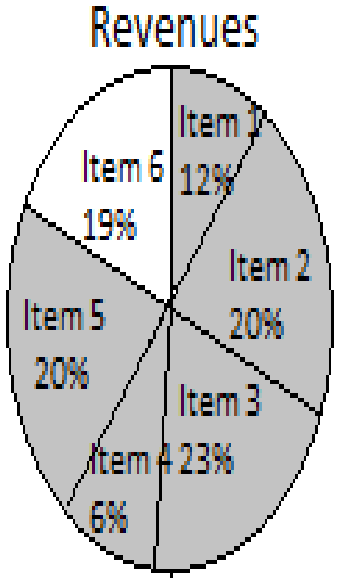
Check in year 2006:-

= (120 – 100)/100 = 1/5

GATE-2015

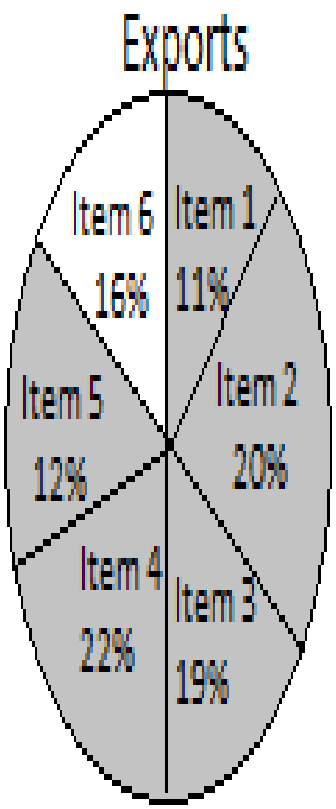
The total exports and revenues from the exports of a country are given in the two charts shown below. The pie chart for exports shows the quantity of each item exported as a percentage of the total quantity of exports. The pie chart for the revenues shows the percentage of the total revenue generated through export of each item. The total quantity of exports of all the items is 500 thousand tones and the total revenues are 250 crore rupees. Which item among the following has generated the maximum revenues per kg?

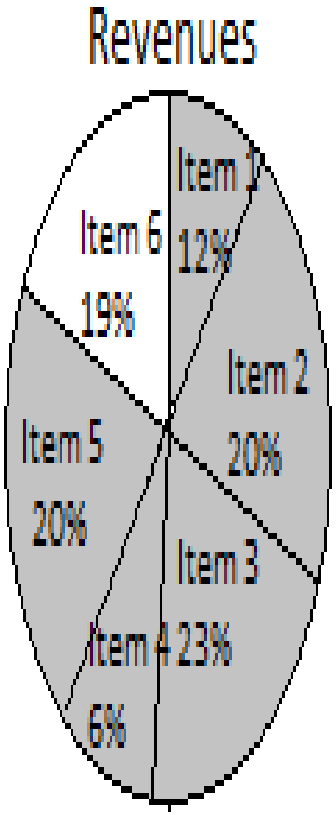




(a) Item 2
(b) Item 3
(c) Item 6
(d) Item 5

EXPLANATION





The total quantity of exports = 500 thousand tones

The total revenues = 250 crore rupees

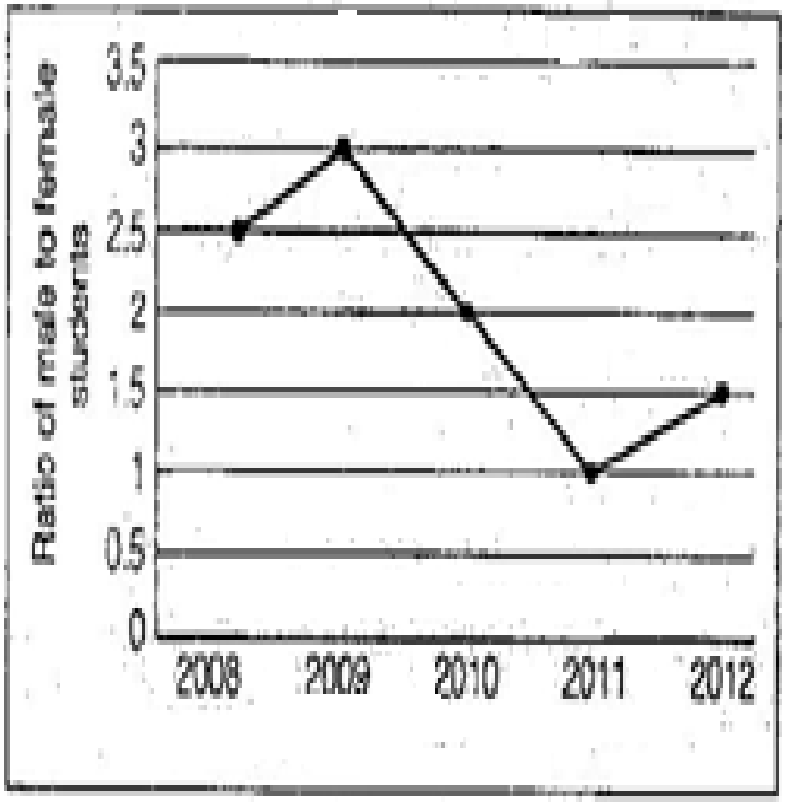
Generated the maximum revenues per kg =

Check for item 5 =

(250 X 20/100)/ (500 X 12/100)= 5/6

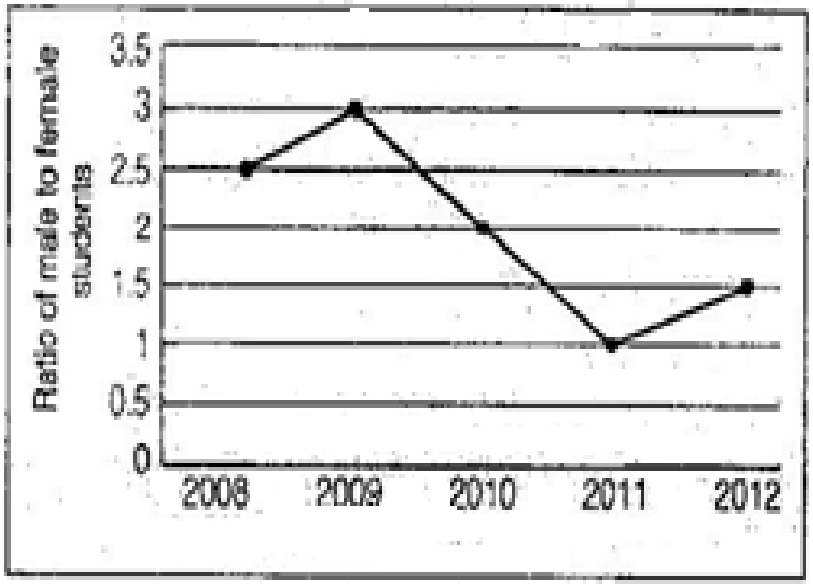
QUESTION

The ratio of male to female students in a college for five years is plotted in the following line graph. If the number of female students doubled in 2009, by what percent did the number of male students increase in 2009?



EXPLANATION

The ratio of male to female students in a college for five years is plotted in the following line graph. If the number of female students doubled in 2009, by what percent did the number of male students increase in 2009?



In 2008:-

M/F = 2.5

Let total female in 2008 = X

Male in 2008 = 2.5 X

Then total female in 2009 = 2X

M/F = 3 [F = 2X]

Male in 2009 = 6X

% Male Increase in 2009 =

[(6X – 2.5X)/ 2.5] X 100 = 140%

Thank you