

DATA INTERPRETATION-I

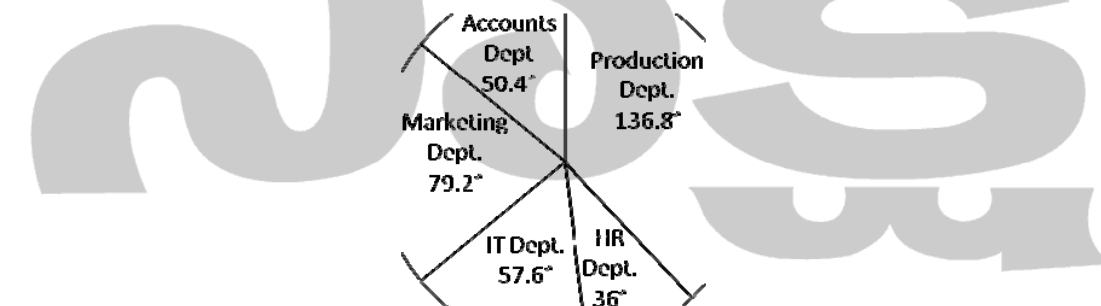
PIE CHART: If a large sum (number) is divided into smaller sums, then to represent the large sum and all the smaller sums, pie chart can be used. In pie chart the large sum is taken as a circle (pie) and the smaller sums are represented as sectors of the circle. The total angle of a circle is 360° . So the value of the larger sum is taken as 360° and the sum of angle equivalents of smaller sums is equal to 360° . Similarly if a pie chart is represented in percentages then the larger sum is 100% and the sum of percentages of all smaller sums is 100%.

IMPORTANT TIP: To find the ratio or a percentage relation between two or more elements of a single pie chart take the ratio between respective angles or percentages instead of their values.

PROBLEMS

Directions (1-5): Study the following pie charts carefully to answer the questions.
Degree-wise breakup of employees working in various departments of an organization and the ratio of Men to Women

Total Number of Employees = 3250
Dept. → Department



Respective Ratio of Men to Women in Each Department

Department	Men	Women
Production	4	1
HR	12	13
IT	7	3
Marketing	3	2
Accounts	6	7

1. What is the number of men working in the Marketing department?
 a) 462 b) 454 c) 418 d) 424 e) None of these

ANSWER: e

Total number of employees = $360^\circ = 3250$

Number of employees working in the marketing department = $\frac{79.2^\circ}{360^\circ} \times 3250$

$$\begin{aligned} \therefore \text{Men working in marketing department} &= \frac{79.2^\circ}{360^\circ} \times 3250 \times \frac{3}{(3+2)} \\ &= \frac{792}{360} \times 3250 \times \frac{3}{5} = \frac{79.2 \times 65}{12} = 429 \end{aligned}$$

2. What is the respective ratio of the number of women working in the HR department and the number of men working in the IT department?

- a) 11 : 12 b) 17 : 29 c) 13 : 28 d) 12 : 35 e) None of these

ANSWER: c

This is a question based on ratio. So the employees of HR and IT department can be taken as 36 and 57.6 respectively. (the central angles)

$$\text{Women in HR department} = 36 \times \frac{13}{(12+13)} = \frac{36 \times 13}{25}$$

$$\text{Men in IT department} = 57.6 \times \frac{7}{(7+3)} = \frac{57.6 \times 7}{10}$$

$$\begin{aligned} \text{Required ratio} &= \frac{36 \times 13}{25} : \frac{57.6 \times 7}{10} \\ &= 36 \times 13 \times 10 : 57.6 \times 7 \times 25 \\ &= 13 \times 10 : 7 \times 40 = 13 : 28 \end{aligned}$$

3. The number of men working in the Production department of the organization forms what percent of the total number of employees working in that department?

- a) 88 b) 90 c) 75 d) 65 e) None of these

ANSWER: e

This is a question based on percentage.

So the employees of production department can be taken as 136.8 (even this is redundant for this question)

Men and women in production department are in the ratio of 4 : 1. So men are

$$\left(\frac{4}{4+1} \right) \times 100 = \frac{4}{5} \times 100 = 80 \% \text{ of that department.}$$

4. The number of women working in the IT department of the organization forms what percent of the total number of employees in the organization from all departments together?

- a) 3.2 b) 4.8 c) 6.3 d) 5.6 e) None of these

ANSWER: b

Like the previous question,

Total number of employees = 360 and number of employees of IT department = 57.6

$$\therefore \text{Women in IT department} = 57.6 \times \frac{3}{(7+3)} = \frac{57.6 \times 3}{10} = \frac{172.8}{10} = 17.28$$

$$\therefore \text{Required percentage} = \frac{17.28}{360} \times 100 = 4.8$$

5. What is the total number of men working in the organization?
 a) 2198 b) 2147 c) 2073 d) 2236 e) None of these

ANSWER: b

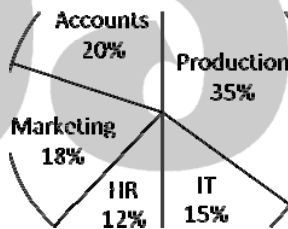
Number of men in organization

$$\begin{aligned} &= \frac{3250}{360} \times \left[136.8 \times \frac{4}{5} + 36 \times \frac{12}{25} + 57.6 \times \frac{7}{10} + 79.2 \times \frac{3}{5} + 50.4 \times \frac{6}{15} \right] \\ &= \frac{3250}{360} \left[\frac{5472}{50} + \frac{864}{50} + \frac{2016}{50} + \frac{2376}{50} \right] + \frac{3250}{360} \times 50.4 \times \frac{6}{15} \\ &= \frac{3250}{360} \left[\frac{10728}{50} \right] + 210 = 1937 + 210 = 2147 \end{aligned}$$

Directions (6-10): Study the given pie-charts carefully to answer the questions that follow:

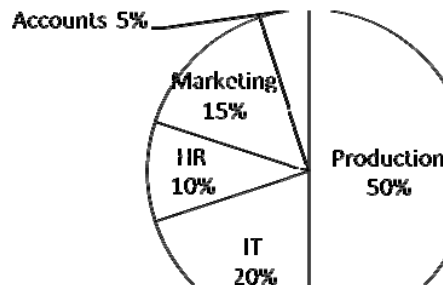
Break-up of Employees Working In Different Departments:

Total Number of Employees = 3,600



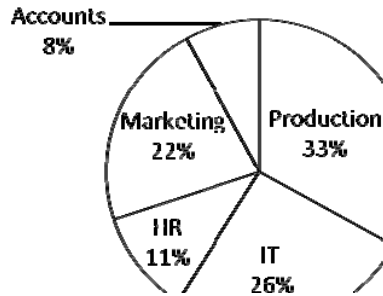
Break-up of number of males in each Department

Total number of Males in the Organisation = 2,040



Break-up of number of Employees who recently got promoted in each Department

Total number of Employees who got promoted = 1,200



6. If half of the number of employees who got promoted from the IT department were males, what was the **approximate** percentage of males who got promoted from the IT department?

- a) 61 b) 29 c) 54 d) 42 e) 38

ANSWER: e

Since the ratio between promoted employees and males is 1200 : 2040 = 10 : 17.
Take

the promoted employees as 10 and males as 17.

$$\div \text{ Employees promoted from IT} = \frac{26}{100} \times 10 \times \frac{1}{2} = 1.3$$

$$\text{Males promoted from IT} = \frac{20}{100} \times 17 = 3.4$$

$$\text{Required percentage} = \frac{1.3}{3.4} \times 100 = \frac{1300}{34} \cong 38$$

7. What is the total number of females working in the Production and Marketing departments together?

- a) 468 b) 812 c) 582 d) 972 e) None of these

ANSWER: c

$$\text{Total employees in production and marketing} = \left(\frac{35+18}{100} \right) \times 3600 = 53 \times 36 = 1908$$

$$\text{Total males in production and marketing} = \left(\frac{50+15}{100} \right) \times 2040 = \frac{65}{100} \times 2040 = 13 \times 102 = 1326$$

$$\div \text{ Females from production and marketing} = 1908 - 1326 = 582$$

8. How many females work in the Accounts department?

- a) 618 b) 592 c) 566 d) 624 e) None of these

ANSWER: a

$$\text{Employees in accounts department} = \frac{20}{100} \times 3600 = 720$$

$$\text{Males in accounts department} = \frac{5}{100} \times 2040 = 102$$

$$\div \text{ Females in accounts department} = 720 - 102 = 618$$

9. The total number of employees who got promoted from all the departments together was what percent of the total number of employees working in all the departments together? (Rounded off to the nearest integer)

- a) 56 b) 21 c) 45 d) 33 e) 51

ANSWER: d

$$\text{Required percentage} = \frac{1200}{3600} \times 100 = 33.33 \approx 33\%$$

10. The number of employees who got promoted from the HR department was what percent of the total number of employees working in that department? (Rounded off to two digits after decimal)

- a) 36.18 b) 30.56 c) 47.22 d) 28.16 e) None of these

ANSWER: b

Since the total employees and the employees who got promoted are in the ratio of 3600 : 1200 = 3 : 1, take the total employees as 3 and promoted employees as 1.

Employees promoted from HR = 11% of 1 = 11%

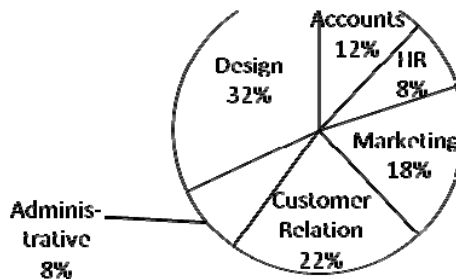
Total employees from HR = 12% of 3 = 36%

$$\text{Required percentage} = \frac{11\%}{36\%} \times 100 = \frac{1100}{36} = 30.56$$

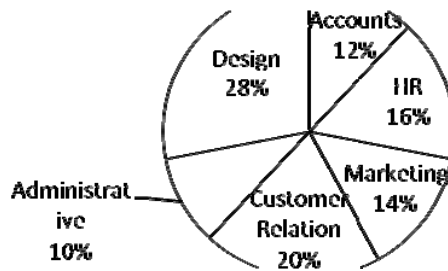
PRACTICE QUESTIONS

Directions (Q. 1-5): Study the following graph carefully and answer the questions that follow:

Percentage of employees in different departments of a company
Total No. of employees = 4500



Percentage of females in each department in the same company
Total No. of females in the organisation = 2000



1. What is the total number of males from Design, Customer Relation and HR departments together?
a) 1550 b) 1510 c) 1540 d) 1580 e) None of these
2. What is the ratio of number of males in HR department to the number of males in Accounts department respectively?
a) 3 : 17 b) 4 : 15 c) 2 : 15 d) 2 : 13 e) None of these
3. The number of females in the Marketing department are **approximately** what per cent of the total employees in Marketing and Customer Relation departments together?
a) 26 b) 36 c) 6 d) 46 e) 16
4. What is the respective ratio of number of employees in Administrative department to the number of males in the same department?
a) 9 : 4 b) 8 : 3 c) 7 : 2 d) 8 : 5 e) None of these
5. The total number of females are what per cent of the total number of males in the organisation?
a) 90 b) 70 c) 80 d) 60 e) None of these

KEY: 1) b 2) c 3) e 4) a 5) c