

## 9<sup>th</sup> chapter Statics CBSE Test Paper solved

- What is the Mode of the following scores is: - 14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, 18
- Prepare a continuous grouped frequency distribution from the following data and hence construct the histogram using this table:

Mid-point	5	15	25	35	45
frequency	4	8	13	12	6

- (a) Find the median of the following data: 95, 65, 75, 70, 75, 100, 50, 40 (b) If the median of a series of data is 3 and mean is 2 then find the mode. [ \* Mode = 3 median - 2 mean]
- A and B are the only two outcomes of an event. Probability of P(A) = 0.72, then what will be the probability P(B) and why ?
- The mean of 40 observations was 160. It was detected on rechecking that the value 165 was wrongly copied as 125. Find the correct mean.
- Find the value of p if mean of following distribution is 20 :

x	15	17	19	20+ p	23
f	2	3	4	5p	6

- 1500 families with 2 children were selected randomly and the following data was recorded:

No. of girls	0	1	2
No. of families	211	814	475

If a family is chosen at random, find the probability that it has (i) at most one girl (ii) at least one girl.

- Draw a frequency polygon to represent the following information :

Class	25 – 29	30 – 34	35 – 39	40 – 44	45 – 49	50 – 54
Frequency	5	15	23	20	10	7

- The following observations have been arranged in ascending order. If the median of the data is 63, find x 29, 32, 48, 50, x, x+2, 72, 78, 84, 95

10. Find the mean ( $\bar{x}$ ) of first ten prime numbers and hence show that  $\sum_{i=1}^{10} x - \bar{x} = 0$

- Marks obtained by 90 student in a particular subject out of a total of 100 are given below, find the probability that a student selected obtained marks 60 or above and a student selected obtained less than 40.

Marks out of 100	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 – 70	70 and above
Number of students	7	10	10	20	20	15	8

- A random survey of number of children of various age groups playing in a park was found as follows Draw the histogram of given data

Age (in years)	1-2	2-3	3-5	5-7	7-10	10-15	15-17
Number of children	5	3	6	12	9	10	4

- The class marks of a frequency distribution are 104, 114, 124, 134, 144, 154, 164. find the class size and class intervals

- For a particular year, following is the distribution of ages (in years) of primary school teachers in a district:

Age (in years)	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 - 50
No. of teachers	10	30	50	50	30	6	4

- Write the lower limit of first class interval. (ii) Determine the class limits of the fourth class interval (iii) Find the class mark of the class 45 – 50. (iv) Determine the class – size.

- A die is rolled 25 times and outcomes are recorded as under

Out comes	1	2	3	4	5	6
Frequency	9	4	5	6	1	0

It is thrown one more time Find the probability of getting (a) an even number (b) a multiple of 3 (c) a prime number

- In a histogram, each class rectangle is constructed with base as ----- [Class interval]

- Tally marks are used to find ----- [frequency]

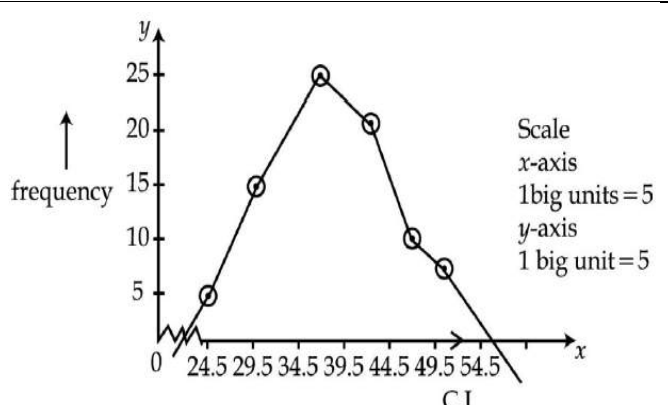
16. In a bar graph height of each rectangle is representation of ----- [ frequency]

- The mean of 200 items was 50. Later on, it was discovered that the two items were misread as 92 and 8 instead of 192 and 88. Find the correct mean. [ 50.9 ]

- The mean monthly salary of 10 members of a group is Rs. 1445, one more member whose monthly salary is Rs. 1500 has joined the group. Find the mean monthly salary of 11 members of the group. [Rs 1450]

- The class mark of a particular class is 6.5 and its class size is 3. Write the next 3 classes. If they are continuous.

Solution of 9th Class Statics CBSE Test Paper

1	14																																																						
2	4/5																																																						
3	<p>40, 50, 65, 70, 75, 75, 95, 100  <math>n = 8</math> (even)</p> $\text{median} = \frac{\left(\frac{n}{2}\right)^{\text{th}} \text{ obs.} + \left(\frac{n}{2} + 1\right)^{\text{th}} \text{ obs.}}{2}$ $= \frac{4\text{th obs} + 5\text{th obs}}{2} = \frac{70 + 75}{2} = 72.5$																																																						
4	$P(A) + P(B) = 1 \Rightarrow P(B) = 1 - 0.72 = 0.28$																																																						
5	<p>Mean of 40 observation = 160 then Sum of 40 observations = <math>160 \times 40 = 6400</math>          New sum = <math>6400 + 165 - 125 = 6400 + 40 = 6440</math>          New mean = <math>6440 / 40 = 161</math></p>																																																						
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8	<table border="1" style="width: 100%; border-collapse: collapse; margin-right: 20px;"> <thead> <tr> <th style="width: 15%;">C. I.</th> <th style="width: 10%;">f</th> <th style="width: 25%;">Continuous C. I.</th> <th style="width: 15%;">Class marks</th> </tr> </thead> <tbody> <tr> <td>25 - 29</td> <td style="text-align: center;">5</td> <td>24.5 - 29.5</td> <td style="text-align: center;">27</td> </tr> <tr> <td>30 - 34</td> <td style="text-align: center;">15</td> <td>29.5 - 34.5</td> <td style="text-align: center;">32</td> </tr> <tr> <td>35 - 39</td> <td style="text-align: center;">23</td> <td>34.5 - 39.5</td> <td style="text-align: center;">37</td> </tr> <tr> <td>40 - 44</td> <td style="text-align: center;">20</td> <td>39.5 - 44.5</td> <td style="text-align: center;">42</td> </tr> <tr> <td>45 - 49</td> <td style="text-align: center;">10</td> <td>44.5 - 49.5</td> <td style="text-align: center;">47</td> </tr> <tr> <td>50 - 54</td> <td style="text-align: center;">7</td> <td>49.5 - 54.5</td> <td style="text-align: center;">52</td> </tr> </tbody> </table> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Scale              x-axis              1 big units = 5              y-axis              1 big unit = 5</p> </div> </div>	C. I.	f	Continuous C. I.	Class marks	25 - 29	5	24.5 - 29.5	27	30 - 34	15	29.5 - 34.5	32	35 - 39	23	34.5 - 39.5	37	40 - 44	20	39.5 - 44.5	42	45 - 49	10	44.5 - 49.5	47	50 - 54	7	49.5 - 54.5	52																										
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9	<p>29, 32, 48, 50, x, x+2, 72, 78, 84, 95          Here, <math>N=10</math> (even)          Median = Mean of 5th and 6th observation. <math>\Rightarrow 63 = (x + x+2)/2 \Rightarrow x = 62</math>.</p>																																																						
10.	<p>First ten prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29.          Mean = <math>\frac{2+3+5+7+11+13+17+19+23+29}{10} = \frac{129}{10} = 12.9</math></p>																																																						

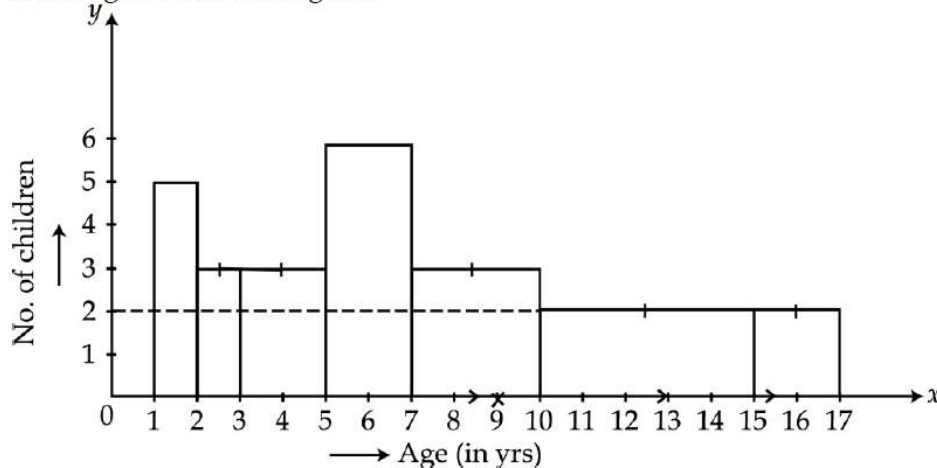
Now,  $\sum_{i=1}^{10} (x_i - \bar{x}) = (2 - 12.9) + (3 - 12.9) + (5 - 12.9) + (7 - 12.9)$   
 $+ (11 - 12.9) + (13 - 12.9) + (17 - 12.9) + (19 - 12.9)$   
 $+ (23 - 12.9) + (29 - 12.9)$   
 $= -10.9 - 9.9 - 7.9 - 5.9 - 1.9 + 0.1 + 4.1 + 6.1 + 10.1 + 16.1$   
 $= -36.5 + 36.5 = 0.$   
 $\sum_{i=1}^{10} (x_i - \bar{x}) = 0.$

11. The probability that a student selected obtained marks 60 or above =  $(15+8)/90 = 23/90$   
 The probability that a student selected obtained marks less than 40 =  $(10+10 + 7)/90 = 27/90$

Age (in years)	No. of Children	Width of class	Length of rectangle
1 - 2	5	1	$\frac{5}{1} \times 1 = 5$
2 - 3	3	1	$\frac{3}{1} \times 1 = 3$
3 - 5	6	2	$\frac{6}{2} \times 1 = 3$
5 - 7	12	2	$\frac{12}{2} \times 1 = 6$
7 - 10	9	3	$\frac{9}{3} \times 1 = 3$
10 - 15	10	5	$\frac{10}{5} \times 1 = 2$
15 - 17	4	2	$\frac{4}{2} \times 1 = 2$

Minimum class size = 1

Drawing of correct histogram



13. Class size =  $114 - 104 = 10$   
 Upper Limit:  $104 + (10/2) = 109$   
 Lower Limit:  $104 - (10/2) = 99$   
 Class intervals are: 99 - 109, 109 - 119, 119 - 129, 129 - 139, 139 - 149, 149 - 159, 159 - 169.
14. (i) Lower limit of 1st Class interval = 15 (ii) Class limits of 4th class are lower limit = 30 and upper limit = 35  
 (iii) Class mark of class 45 - 50 =  $(45 + 50) / 2 = 47.5$  (iv) Class size =  $20 - 15 = 5$
15. Possible outcomes - 25  
 (1) event E1 - an even number favourable out comes =  $4+6+0 = 10$   $P(E1) = 10/25 = 0.4$   
 (2) event E2 - a multiple of 3 favourable out comes =  $5+0 = 5$   $P(E2) = 5/25 = 0.2$   
 (3) event E3 - a prime Number favourable outcomes =  $4+5+1 = 10$   $P(E3) = 10/25 = 0.4$