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NCERT Class 9 Solutions: Statistics (Chapter 14) Exercise 14.3-Part 3 (For CBSE, ICSE, IAS, NET, NRA 2022)

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Q-7 The runs scored by two teams A and B on the first 60 balls in a cricket match are given below:

Number of balls	Teams A	Team B
1 – 6	2	5
7 – 12	1	6
13 – 18	8	2
19 – 24	9	10
25 – 30	4	5
31 – 36	5	6
37 – 42	6	3
43 – 48	10	4
49 – 54	6	8
55 – 60	2	10

Runs Scored by Two Teams in Cricket Match

Represent the table data of both the teams on the same graph by frequency polygons.

[Hint: First make the class intervals continuous.]

Solution:

Convert to continuous frequency distribution:

Difference between lower limit of class and upper limit of preceding class: $(7 - 6 = 1)$

Hence, $\frac{h}{2} = \frac{1}{2} = 0.5$ added to each upper class limit and subtract from the lower class limits.

$$\text{Class marks} = \frac{\text{upper class limit} + \text{lower class limit}}{2}$$

Obtain distribution is given as under:

Number of balls	Class marks	Team A	Team B
0.5 – 6.5	3.5	2	5
6.5 – 12.5	9.5	1	6
12.5 – 18.5	15.5	8	2
18.5 – 24.5	21.5	9	10
24.5 – 30.5	27.5	4	5
30.5 – 36.5	33.5	4	5
36.5 – 42.5	39.5	6	3
42.5 – 48.5	45.5	10	4
48.5 – 54.5	51.5	6	8
54.5 – 60.5	57.5	2	10

Obtain Continuous Frequency Distribution

Class mark on x-axis and number of balls on y-axis

Drawn the graph:



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Q-8 A random survey of the number of children of various age groups playing in park was found as follows:

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

Draw a Histogram to Represent the Data of Table

Draw a histogram to represent the data above.

Solution:

As given frequency data in class size are different.

So, we calculate adjusted frequency for each class using formula:

$$\text{Adjusted frequency} = \frac{\text{Minimum class size}}{\text{width of class}} \times \text{It's frequency}$$

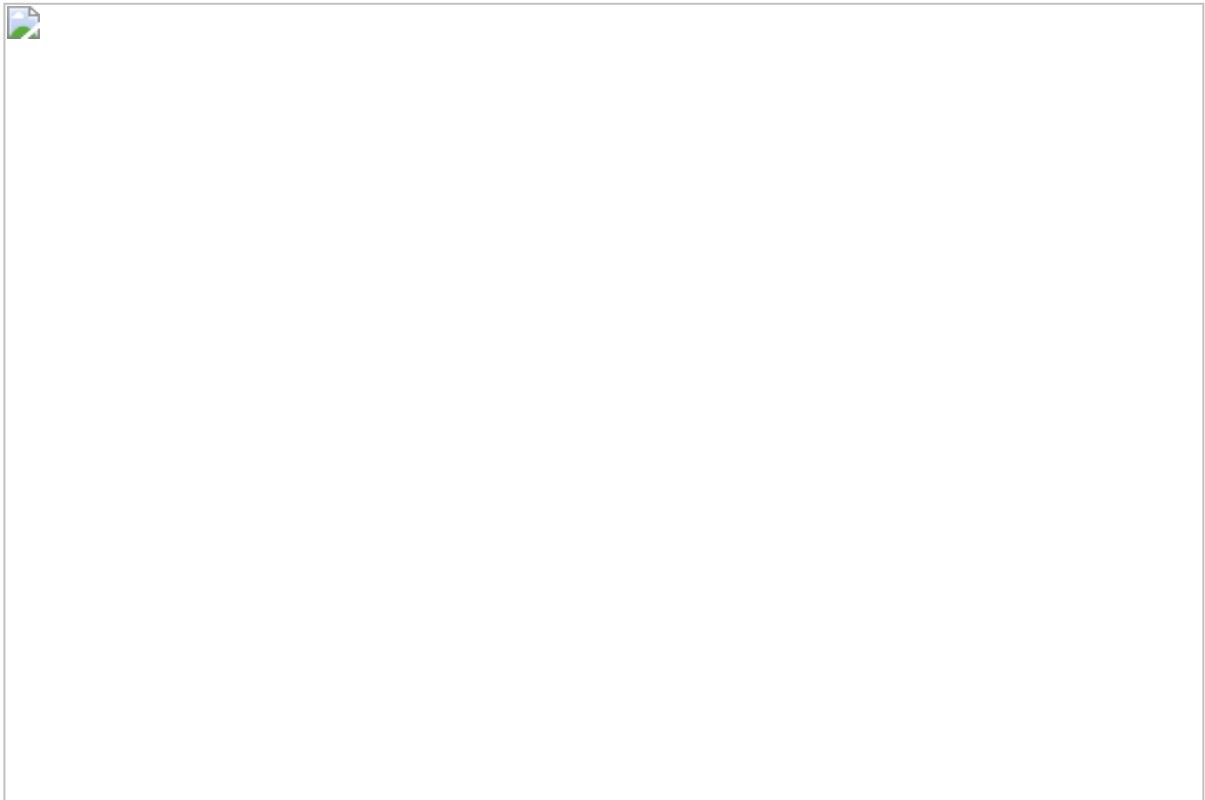
Here, minimum class size = $2 - 1 = 1$

Age (In year)	Frequency (number of children)	Width of classes	Adjusted Frequency
1 – 2	5	1	$\frac{5 \times 1}{1} = 5$
2 – 3	3	1	$\frac{3 \times 1}{1} = 3$
3 – 5	6	2	$\frac{6 \times 1}{2} = 3$
5 – 7	12	2	$\frac{12 \times 1}{2} = 6$
7 – 10	9	3	$\frac{9 \times 1}{3} = 3$
10 – 15	10	5	$\frac{10 \times 1}{5} = 2$
15 – 17	4	2	$\frac{4 \times 1}{2} = 2$

Find the Adjusted Frequency to Draw Histogram

In below chart age of children on x-axis

Proportion of children per 1 year interval on y-axis



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