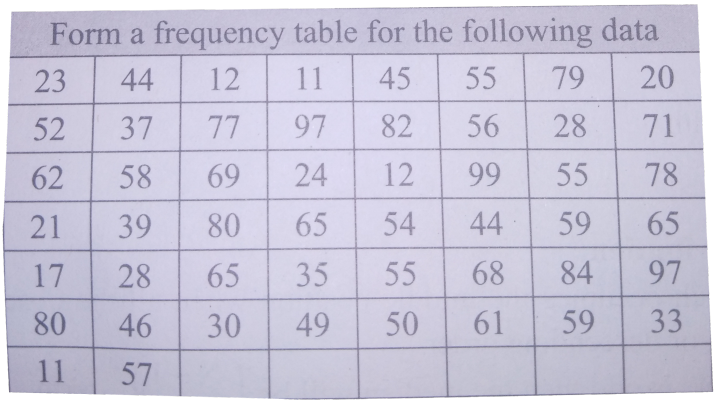
# MATHS

# BOOKS - FULL MARKS MATHS (TAMIL ENGLISH)

## STATISTICS

Progress Check

**1.** Draw a tally mark table for the following



| Form a frequency table for the following data | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23 | 44 | 12 | 11 | 45 | 55 | 79 | 20 |
| 52 | 37 | 77 | 97 | 82 | 56 | 28 | 71 |
| 62 | 58 | 69 | 24 | 12 | 99 | 55 | 78 |
| 21 | 39 | 80 | 65 | 54 | 44 | 59 | 65 |
| 17 | 28 | 65 | 35 | 55 | 68 | 84 | 97 |
| 80 | 46 | 30 | 49 | 50 | 61 | 59 | 33 |
| 11 | 57 | | | | | | |

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**2.** Mean of 10 observations is 48 and 7 is subtracted to each observation, then mean of new observation is ..... .

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**3.** The mean of 12 numbers is 20, if each number is multiplied by 6, then the new mean is ..... .

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**4.** The mean of 30 numbers is 16, If each number is divided by 4, then the new mean is ..... .

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**5.** There are four numbers, If we leave out any one number, the average of the remaining three numbers will be 45,60,65 or 70. What is the average of all four numbers ?

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**6.** The median of the first four whole nubmers.

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## Exercise 8 1

**1.** In a week, temperature of a certain place is measured during winter are as follows $26^\circ C, 24^\circ C, 28^\circ C, 31^\circ C, 30^\circ C, 26^\circ C, 24^\circ C$. Find the mean temperature of the week.

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**2.** The mean weight of 4 members of a family is 60 kg Three of them have the weight 56 kg, 68

kg and 72 kg respectively. Find the weight of fourth member.

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**3.** In a class test in mathematics, 10 students scored 75 marks, 12 students scored 60 marks, 8 students scored 40 marks and 3 students scored 30 marks. Find the mean of their score.

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**4.** In a research laboratory scientists treated 6 mice with lung cancer using natural medicine . Ten days later, they measured the volume of the tumor in each mouse and given the results in the table

| Mouse marking | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Tumor Volume ($mm^3$) | 145 | 148 | 142 | 141 | 139 | 140 |

Find the mean.

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**5.** If the mean of the following data is 20.2 , then find the value of p.

| Marks | 10 | 15 | 20 | 25 | 30 |
|---|---|---|---|---|---|
| No. of students | 6 | 8 | $p$ | 10 | 6 |

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**6.** In the class weight of students is measured for the class records . Calculate mean weight of the class students using direct method.

| Weight in kg | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 |
|---|---|---|---|---|---|---|
| No. of students | 4 | 11 | 19 | 14 | 0 | 2 |

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**7.** Calculate the mean of the following distribution using Assumed Mean Method.

| Class Interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|---|---|---|---|---|---|
| Frequency | 5 | 7 | 15 | 28 | 8 |

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**8.** Find the Arithmetic Mean of the following data using Step Deviation Method.

| Age | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
|---|---|---|---|---|---|---|
| No. of persons | 4 | 20 | 38 | 24 | 10 | 9 |

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## Exercise 8 2

**1.** Find the median of the given values : 47, 53, 62, 71, 83, 21, 43, 41.

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**2.** Find the Median of the given data : 36, 44, 86, 31, 44, 86, 35, 60, 51.

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**3.** The median of observation 11, 12, 14, 18, x + 2, x + 4, 30, 32, 35, 41 arranged in ascending order is 24. Find the values of x.

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**4.** A researcher studying the behaviour of mics has recorded the time ( in seconds ) taken by each mouse to locate its food by considering 13 different mics as 31, 33, 63, 33, 28, 29, 33, 27,

34, 35, 28, 32. Find the median time that mics spent in searching its food.

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**5.** The following are the marks scored by the students in the Summative Assessment exam

| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|---|---|---|---|---|---|---|
| No. of students | 2 | 7 | 15 | 10 | 11 | 5 |

Calculate the median.

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**6.** The mean of five positive integers is twice their median. If four of the integers are 3, 4, 6, 9 and median is 6, then find the fifth integer.

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## Exercise 8 3

**1.** The monthly salary of 10 employees in a factory are given below :

₹5000, ₹7000, ₹5000, ₹7000, ₹8000, ₹7000,

₹7000, ₹8000, ₹7000, ₹5000

Find the mean, median and mode.

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**2.** Find the mode of the given data : 3.1, 3.2, 3.3, 2.1, 1.3, 3.3, 3.1

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**3.** For the data 11, 15, 17, x + 19, 19, x-2, 3 if the mean is 14, find the value of x, Also find the

mode of the data.

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**4.** The demadn of track suit of different sizes as obtained by a survey is given below:

| Size | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 |
|---|---|---|---|---|---|---|---|---|
| No. of persons | 36 | 15 | 37 | 13 | 26 | 8 | 6 | 2 |

Which size is demanded more ?

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**5.** Find the mode of the following data :

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|---|---|---|---|---|---|
| No. of students | 22 | 38 | 46 | 34 | 20 |

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**6.** Find the mode of the following distribution :

| Weight (in kgs) | 25-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75-84 |
|---|---|---|---|---|---|---|
| Number of students | 4 | 8 | 10 | 14 | 8 | 6 |

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Exercise 8 4

**1.** Let m be the mid point and b be the upper limit of a class in a continuous frequency distribution. The lower limit of the class is

A. 2m-b

B. 2m+b

C. m-b

D. m-2b

**Answer: A**

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**2.** The mean of set of seven numbers is 81. If one of the numbers is discarded, the mean of the remaining numbers is 78. The value of the discarded number is

A. 101

B. 100

C. 99

D. 98

**Answer: C**

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**3.** A particular observation which occurs maximum number or times in a given data is called its

A. frequency

B. range

C. mode

D. median

**Answer: C**

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**4.** For which set of numbers do the mean, median and mode all have the same values ?

A. 2,2,2,4

B. 1,3,3,3,5

C. 1,1,2,5,6

D. 1,1,2,1,5

**Answer: B**

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**5.** The algebraic sum of the deviations of a set of n values form their mean is

A. 0

B. n-1

C. n

D. n+1

**Answer: A**

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**6.** The mean of a, b, c, d and e is 28. If the mean of a, c and e is 24, then mean of b and d is

A. 24

B. 36

C. 26

D. 34

**Answer: D**

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**7.** If the means of five observation $x$, $x + 2$, $x + 4$, $x + 6$, $x + 8$, is 11 then the mean of first three observation is

A. 9

B. 11

C. 13

D. 15

**Answer: A**

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**8.** The mean of 5, 9, x, 17, and 21 is 13, then find the value of x

A. 9

B. 13

C. 17

D. 21

**Answer: B**

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**9.** The mean of the square of first 11 natural number is

A. 26

B. 46

C. 48

D. 52

**Answer: B**

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**10.** The mean of a set of numbers is X. If each number is multiplied by z, the mean is

A. $\overline{X} + z$

B. $\overline{X} - z$

C. $z\overline{X}$

D. $\overline{X}$

**Answer: C**

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## Additional Question

**1.** The Arithmetic mean of all the factors of 10 is ..... .

A. 4.5

B. 5.5

C. 10

D. 55

**Answer: A**

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**2.** The mean of five numbers is 27, if one number is excluded, then mean is 25 . Then the excluded number is . .....

A. 0

B. 15

C. 25

D. 35

**Answer: D**

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**3.** The mean of 8 numbers is 15. If each number is multiplied by 2, then the new mean will be ..... .

A. 7.5

B. 30

C. 10

D. 25

**Answer: B**

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**4.** The median of 11,8,4,9,7,5,2,4,10 is .....

A. 7

B. 8

C. 4

D. 11

**Answer: A**

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**5.** Median is ..... .

A. the most frequent value

B. the least frequenct value

C. middle most value

D. mean of first and last values

**Answer: C**

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**6.** The mode of the distribution is ..... .

| $x$ | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| $f$ | 2 | 3 | 7 | 14 | 8 | 10 |

A. 3

B. 4

C. 6

D. 14

**Answer: B**

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**7.** Mode is ..... .

A. the middle value

B. extreme value

C. minimum value

D. the most repeated value

**Answer: D**

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**8.** The mode of the data 72,33,44,72,81,15 is ..... .

A. 72

B. 33

C. 81

D. 15

**Answer: A**

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**9.** The Arithmetic mean of 10 number is -7 . If 5 is added to every number, then the new arithmetic mean is ..... .

A. 17

B. 12

C. -2

D. -7

**Answer: C**

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**10.** The Arithmetic mean of integers from -5 to 5 is ..... .

A. 25

B. 10

C. 3

D. 0

**Answer: D**

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## Additional Question Answer The Following Question

**1.** Find the Arithmetic mean of the following data

| Class interval | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---|---|---|---|---|---|---|---|---|
| Frequency | 8 | 10 | 14 | 17 | 21 | 18 | 5 | 3 |

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**2.** Calculate the Arithmetic mean of the following data using step deviation method.

| Marks | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 | 50 - 60 |
|---|---|---|---|---|---|---|
| No. of students | 5 | 10 | 25 | 30 | 20 | 10 |

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**3.** Find the median for the following data.

| Marks | 11 - 15 | 16 - 20 | 21 - 25 | 26 - 30 | 31 - 35 | 36 - 40 |
|---|---|---|---|---|---|---|
| Frequency | 7 | 10 | 13 | 26 | 9 | 5 |

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**4.** The Calculate the mode of the following data

| Size of item | 10 - 15 | 15 - 20 | 20 - 25 | 25 - 30 | 30 - 35 | 35 - 40 | 40 - 45 | 45-50 |
|---|---|---|---|---|---|---|---|---|
| No. of items | 4 | 8 | 18 | 30 | 20 | 10 | 5 | 2 |

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**5.** Find the mean, median, and mode of marks obtained by 20 students in an examination. The marks are given below.

| Marks | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 |
|---|---|---|---|---|---|
| No. of students | 1 | 4 | 5 | 8 | 2 |

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## Assignment Answer The Following Question

**1.** If the mean of 6,x, 4 and 12 is 8 then find the value of x.

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**2.** The median of the following numbers arranged in descending order is 25. Find the value of x. 40, 38 , 35 , 2x+ 10, 2x+1 , 15 ,11,8,5.

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**3.** What is the mode of the observations 11,8,10,8,15,6,7,8,12,7 and 9.

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**4.** The mean of 100 observations is 50. If one of the observation which was 50 is replaced by 150 then what will be the resulting mean ?

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**5.** Find the Arithmetic mean of $x+77, x+7, x+5, x+3$ and $x-2$.

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**6.** Find the mode for the following data using the relation : Mode = 3 median-2 mean.

| Item: $x$ | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|
| Frequency ($f$) | 1 | 1 | 3 | 4 | 1 | 2 |

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**7.** If the mean of the following data is 18.75 . Find the value of P.

| $x$ | 10 | 15 | 20 | p | 20 |
|---|---|---|---|---|---|
| $f$ | 5 | 10 | 7 | 8 | 2 |

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**8.** Find the mean of the marks obtained by 30 students of class IX of a school. The marks are

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 70 | 10 | 20 | 36 | 92 | 95 | 40 | 50 | 56 | 60 |
| 40 | 92 | 88 | 80 | 70 | 72 | 70 | 36 | 40 | 36 |
| 88 | 92 | 40 | 50 | 50 | 56 | 60 | 70 | 60 | 60 |

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**9.** Find the median of the following data.

| Expenses (in ₹) | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 |
|---|---|---|---|---|---|---|---|---|
| No. of students | 10 | 16 | 30 | 42 | 50 | 55 | 16 | 12 |

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**10.** Calculate the mode of the following distribution.

| Class limit | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 |
|---|---|---|---|---|---|---|---|---|
| Frequency | 4 | 12 | 16 | 22 | 10 | 8 | 6 | 4 |

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