# MATHS

# BOOKS - CHETANA MATHS (MARATHI ENGLISH)

# Statistics

**Example**

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**1.** Find the class mark of the class 11 to 15.

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**2.** The classes are 5-10,10-15,15-20,........Find the class width of each class.

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**3.** From one footwear shop,12 pair of chappals were sold.The sizes of these chappals are given 7,8,6,7,7,5,9,6,7,8,7.find their mode.

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**4.** Find the median of the data 30,25,32,23,42,36,40,33,21,43.
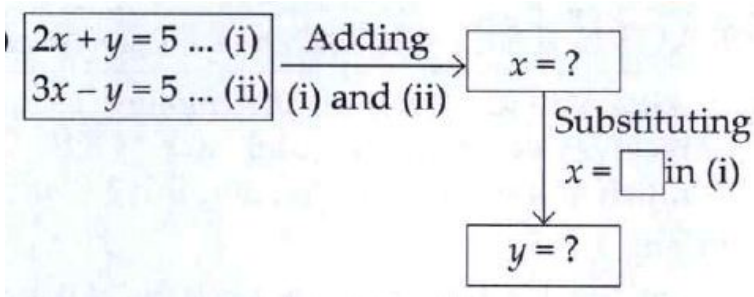
**5.** Find the mean of numbers 25,30,27,23 and 25.

**6.** The following table shows the number of students and the time they utilized daily for their studies. Find the mean time spent by students for their studies by direct method.

| Time (hrs.) | 0 - 2 | 2 - 4 | 4 - 6 | 6 - 8 | 8 - 10 |
|---|---|---|---|---|---|
| No. of students | 7 | 18 | 12 | 10 | 3 |

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**7.**

$$\boxed{\begin{array}{l} 2x + y = 5 \dots \text{(i)} \\ 3x - y = 5 \dots \text{(ii)} \end{array}} \xrightarrow{\begin{array}{c}\text{Adding} \\ \text{(i) and (ii)}\end{array}} \boxed{x = ?}$$

Substituting
$x = \boxed{\phantom{x}}$ in (i)

$$\boxed{y = ?}$$

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**8.** A milk centre sold milk to 50 customers.The table below gives the number of customers and the milk they purchsed.Find the mean of

the milk sold by direct method

| Milk sold (Litre) | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | 5 - 6 |
|---|---|---|---|---|---|
| No. of customers | 17 | 13 | 10 | 7 | 3 |

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**9.** In the following table,the toll paid by drivers and the number of vehicles is shown.Find the mean of the toll by 'assumed mean' method.

| Toll ($\overline{\rceil}$) | 300 - 400 | 400 - 500 | 500 - 600 | 600 - 700 | 700 - 800 |
|---|---|---|---|---|---|
| No. of Vehicles | 80 | 110 | 120 | 70 | 40 |

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**10.** A frequency ditribution tabe for the production of oranges of some farm owners is given below.Find the mean production of oranges by 'assumed mean' method

| Production (Thousand ₹) | 25 - 30 | 30 - 35 | 35 - 40 | 40 - 45 | 45 - 50 |
|---|---|---|---|---|---|
| No. of farm owners | 20 | 25 | 15 | 10 | 10 |

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**11.** The loans sanctioned by a bank for construction of farm ponds are shown in the

following table.Find the mean of the loans.

| Loan (thousand ₹) | 40 - 50 | 50 - 60 | 60 - 70 | 70 - 80 | 80 - 90 |
|---|---|---|---|---|---|
| No. of farm ponds | 13 | 20 | 24 | 36 | 7 |

**12.** The following frequency distribution table shows the amount of aid given to 50 flood affected families.Find the mean of the amount of aid.

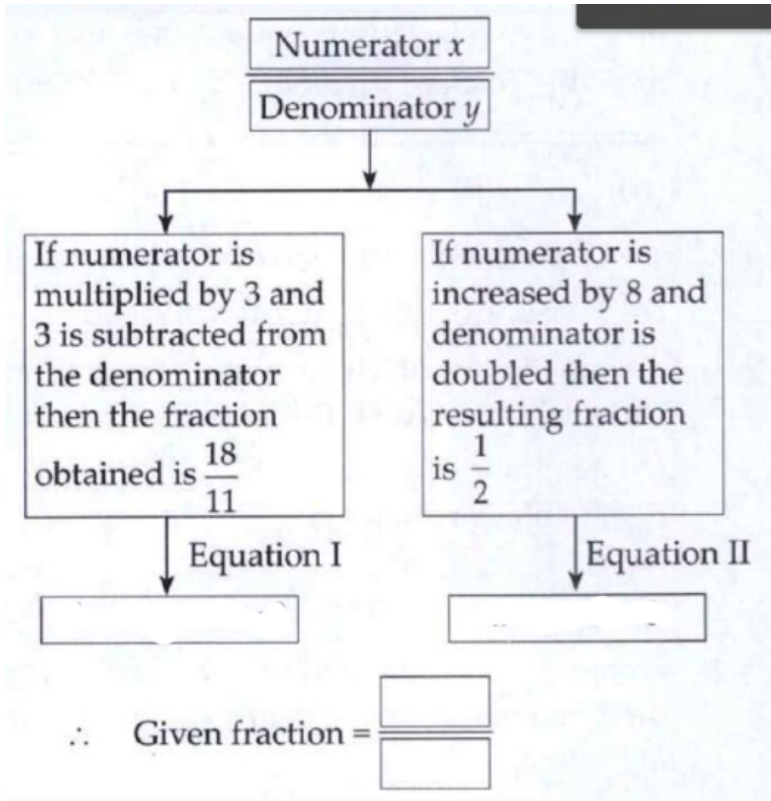| Amount of aid (thousand ₹) | 50 - 60 | 60 - 70 | 70 - 80 | 80 - 90 | 90 - 100 |
|---|---|---|---|---|---|
| No. of families | 7 | 13 | 20 | 6 | 4 |

**13.** A frequency distribution of funds collected by 120 workers in a company for the drought affected people are given in the following table.Find the mean of the funds by 'step deviation' method.

| Fund (₹) | 0 - 500 | 500 - 1000 | 1000 - 1500 | 1500 - 2000 | 2000 - 2500 |
|---|---|---|---|---|---|
| No. of workers | 35 | 28 | 32 | 15 | 10 |

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**14.** Find the fraction.

Numerator $x$

Denominator $y$

If numerator is multiplied by 3 and 3 is subtracted from the denominator then the fraction obtained is $\dfrac{18}{11}$

If numerator is increased by 8 and denominator is doubled then the resulting fraction is $\dfrac{1}{2}$

Equation I

Equation II

$\therefore$  Given fraction = $\dfrac{\boxed{\phantom{xx}}}{\boxed{\phantom{xx}}}$

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**15.** The weekly wages of 120 workers in a factory are shown in the following frequency distribution table.Find the mean of the weekly wages.

| Weekly wages (₹) | 0 - 2000 | 2000 - 4000 | 4000 - 6000 | 6000 - 8000 |
|---|---|---|---|---|
| No. of workers | 15 | 35 | 50 | 20 |

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**16.** The following table shows classification of number of workers and the number of hours they work in a software company.Find the

median of a number of hours they work.

| Daily No. of hours | 8 - 10 | 10 - 12 | 12 - 14 | 14 - 16 |
|---|---|---|---|---|
| No. of workers | 150 | 500 | 300 | 50 |

17. The frequency distribution table shows the number of mango trees in a grove and their yield of mangoes.Find the median of data.

| No. of mangoes | 50 - 100 | 100 - 150 | 150 - 200 | 200 - 250 | 250 - 300 |
|---|---|---|---|---|---|
| No. of trees | 33 | 30 | 90 | 80 | 17 |

**18.** The production of electric bulbs in different factories is shown in the following table.Find the median of the productions.

| No. of bulbs produced (Thousands) | 30 - 40 | 40 - 50 | 50 - 60 | 60 - 70 | 70 - 80 | 80 - 90 | 90 - 100 |
|---|---|---|---|---|---|---|---|
| No. of factories | 12 | 35 | 20 | 15 | 8 | 7 | 8 |

**19.** The distance covered by 250 public transport buses in a day is shown in the following frequency distribution table.Find the

median of the distances.

| Distance (km) | 200 - 210 | 210 - 220 | 220 - 230 | 230 - 240 | 240 - 250 |
|---|---|---|---|---|---|
| No. of buses | 40 | 60 | 80 | 50 | 20 |

**20.**

| Sr. No. | Polynomial | Degree |
|---|---|---|
| (1) | $7y - y^3 + 5$ | |
| (2) | $m^3 n^7 - 3m^5 n + mn$ | |
| (3) | $\sqrt{2}m^{10} - 7$ | |
| (4) | $xyz + xy - 2$ | |

**21.** Find degree of the following

| Sr. No. | Polynomial | Degree |
|---------|-----------|--------|
| (1) | $7y - y^3 + 5$ | |
| (2) | $m^3n^7 - 3m^5n + mn$ | |
| (3) | $\sqrt{2}m^{10} - 7$ | |
| (4) | $xyz + xy - 2$ | |

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**22.** The following table shows the information regarding the milk collected from farmers on a milk collection centre and the content of fat in the milk,measured by a lactometer.Find the

mode of fat content.

| Content of fat (%) | 2-3 | 3-4 | 4-5 | 5-6 | 6-7 |
|---|---|---|---|---|---|
| Milk collected (Litre) | 30 | 70 | 80 | 60 | 20 |

**23.**

$$2x + y = 5 \text{ ... (i)}$$
$$3x - y = 5 \text{ ... (ii)}$$

Adding (i) and (ii) → $x = ?$

Substituting $x = \square$ in (i)

$y = ?$
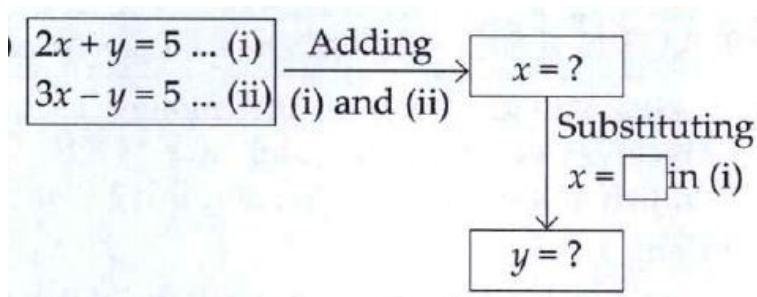
**24.**

| Sr. No. | Polynomial | Degree |
|---------|-----------|--------|
| (1) | $7y - y^3 + 5$ | |
| (2) | $m^3n^7 - 3m^5n + mn$ | |
| (3) | $\sqrt{2}m^{10} - 7$ | |
| (4) | $xyz + xy - 2$ | |

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**25.** Medical checkup of 180 women was conducted in a health centre in a village.50 of them were short of heamoglobin,10 suffered

from cataract and 25 had respiratory disorders.The remaining women were healthy.Show the information in a pie chart.

**26.** The annual investments of a family in pie diagram are as follows: Immovable property $120°$, shares $60°$, post $30°$, bank deposits $90°$ and mutual funds $60°$. How much amount is deposited in bank if investment in shares is ₹2000?

**27.** The annual investments of a family in pie diagram are as follows: Immovable property $120^\circ$, shares $60^\circ$, post $30^\circ$, bank deposits $90^\circ$ and mutual funds $60^\circ$. How much more money is invested in immovable property than in mutual funds if amount invested in shares is ₹2000?

**1.** Find the median of the data 54,63,66,72,98,87,92.

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**2.** Write the upper class limit and the lower class limit of the class 25-35.

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**3.** The mean of eight numbers is 35.If a number is excluded then the mean is reduced by 3.Find the excluded number.

**4.** The persons of O-blood group are 40%. The classification of persons based on blood groups is to be shown by a pie diagram. What should be the measure of angle for the persons of O-blood group? a)$114°$ b)$140°$ c)$104°$ d)$144°$

A. $114°$

B. $140°$

C. $104°$

D. $144°$

**Answer:**

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**5.** Different expenditures incurred on the construction of a building were shown by a pie diagram. The expenditure ₹45,000 on cement

was shown by a sector of central angle of $75°$. What was the total expenditure of the construction? a)₹450000 b)₹216000 c)₹360000 d)₹750000

A. 216000

B. 360000

C. 450000

D. 750000

**Answer:**

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**6.** Cumulative frequencies in a grouped frequency table are useful to find....a)Mean b)Median c)Mode d)All of these

    A. Mean

    B. Median

    C. Mode

    D. All of these

**Answer:**

**7.** The formula to find mean from a grouped frequency table is $\bar{x} = A + g\left(\dfrac{\sum f_i u_i}{\sum f_i}\right)$ In the formula $u_i = \ldots..$ a)$\dfrac{x_i - A}{g}$ b)$(x_i - A)$ c)$\dfrac{x_i + A}{g}$ d)$\dfrac{A - x_i}{g}$

A. $\dfrac{x_i + A}{g}$

B. $(x_i - A)$

C. $\dfrac{x_i - A}{g}$

D. $\dfrac{A - x_i}{g}$

Answer:

**8.** The formula to find mean by direct method is ..........

A. $A + \bar{d}$

B. $\dfrac{\sum f_i d_i}{\sum f_i}$

C. $\dfrac{\sum f_i d_i}{\sum d_i}$

D. $\dfrac{\sum f_i x_i}{\sum f_i}$

**Answer:**

**9.** Class width of any class interval is.....a) Lower limit + upper limit b) Lower limit-Upper Limit c) Upper Limit-Lower limit d) None of these

A. $Lower \lim it + upper \lim it$

B. $Lower \lim it - Upper \text{ Lim } it$

C. $Upper \text{ Lim } it - Lower \lim it$

D. $\dfrac{Upper \lim it - Lower \lim it}{2}$

**Answer:**

**10.** The formula for median is.... a) $L + \left( \dfrac{N}{2} - c.f. \right) \dfrac{h}{f}$ b) $\dfrac{L}{2} + \left( \dfrac{N}{2} - c.f. \right) \dfrac{h}{f}$ c) $L + \left( \dfrac{N}{2} - c.f. \right) \dfrac{f}{h}$ d) $L + \left( \dfrac{N}{2} - f \right) c.f.$

A. $\dfrac{L}{2} + \left( \dfrac{N}{2} - c.f. \right) \dfrac{h}{f}$

B. $L + \left( \dfrac{N}{2} - c.f. \right) \dfrac{h}{f}$

C. $L + \left( \dfrac{N}{2} - c.f. \right) \dfrac{f}{h}$

D. $L + \left( \dfrac{N}{2} - f \right) c. \dfrac{f}{h}$

**Answer:**

**11.** The formula to find the mean deviation $\left(\bar{d}\right)$

in Assumed mean method is...a) $\dfrac{\sum f_i d_i}{\sum d_i}$ b)

$\sum f_i d_i$ c) $\dfrac{\sum f_i d_i}{\sum f_i}$ d) $\dfrac{\sum d_i}{\sum f_i d_i}$

A. $\dfrac{\sum f_i d_i}{\sum d_i}$

B. $\sum f_i d_i$

C. $\dfrac{\sum f_i d_i}{\sum f_i}$

D. $\dfrac{\sum d_i}{\sum f_i d_i}$

**Answer:**

**12.** In step deviation method, $u_i$ is given by...a)

$A + \bar{d}$ b)$\dfrac{x_i - A}{g}$  c)$\dfrac{x_i + A}{g}$  d)$x_i - A$

A. $A + \bar{d}$

B. $x_i - A$

C. $\dfrac{x_i + A}{g}$

D. $\dfrac{x_i - A}{g}$

**Answer:**

**13.** If $\displaystyle\sum f_i d_i = 1885$ and $\displaystyle\sum f_i = 100$, then the value of $\bar{d}$ is...a)1.885 b)188.5 c)18.85 d)1885

A. 1.885

B. 18.85

C. 188.5

D. 1885

**Answer:**

**14.** The formula of mode is....a)

$$L + \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] \times h \qquad \text{b)}$$

$$L - \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] \times h \qquad \text{c)}$$

$$L + \left[\frac{f_1 - f_0}{2f_1 - f_0 + f_2}\right] \times h \qquad \text{d)}$$

$$L + \left[\frac{f_1 - f_0}{2f_2 - f_0 - f_2}\right] \times h$$

A. $L + \left[\dfrac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] \times h$

B. $L - \left[\dfrac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] \times h$

C. $L + \left[\dfrac{f_1 - f_0}{2f_1 - f_0 + f_2}\right] \times h$

D. $L + \left[\dfrac{f_1 - f_0}{2f_1 - f_0 - f_2}\right] \times h$

## Answer:

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15. The formula to find mean by step deviation method is....a)$\dfrac{\sum f_i u_i}{\sum f_i}$  b)$A + \bar{d}$  c)$A + g\bar{u}$  d)

$$\frac{\sum f_i}{\sum f_i u_i}$$

A. $\dfrac{\sum f_i u_i}{\sum f_i}$

B. $A + \bar{d}$

C. $A + g\bar{u}$

D. $\dfrac{\sum f_i}{\sum f_i u_i}$

**Answer:**

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**16.** A pie diagram represents the number of valid votes obtained by four students who contested for school captain post. Values of central angle in pie chart for them are: Albert $100°$, Raj $80°$, Nashima $120°$ and Suja $60°$. The total of valid votes polled was 720. Who has won the election? Find the number of votes received by the winner.

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**17.** A pie diagram represents the number of valid votes obtained by four students who contested for school captain post. Values of central angle in pie chart for them are: Albert $100°$, Raj $80°$, Nashima $120°$ and Suja $60°$. The total of valid votes polled was 720. What is the minimum no of votes? Who got it?

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**18.** A pie diagram represents the number of valid votes obtained by four students who contested for school captain post. Values of central angle in pie chart for them are: Albert $100°$, Raj $80°$, Nashima $120°$ and Suja $60°$. The total of valid votes polled was 720. By how many votes did the winner defeat the nearest contestant?

**19.** A pie chart gives the marks scored in an examination by a student in various subjects as measure of central angle: English $55°$, Maths $90°$, Science $80°$, Hindi $70°$, Social studies $65°$. If the total marks obtained by the student were 360, then find the marks obtained in each subject.

**20.** A pie chart gives the marks scored in an examination by a student in various subjects as measure of central angle: English $55°$, Maths $90°$, Science $80°$, Hindi $70°$, Social studies $65°$. If the total marks obtained by the student were 360, how many more marks he got in Mathematics than in Science?

**21.** A pie chart gives the marks scored in an examination by a student in various subjects as measure of central angle: English $55°$, Maths $90°$, Science $80°$, Hindi $70°$, Social studies $65°$. If the total marks obtained by the student were 360, then the score was least in which subject and how much?

**22.** The class mark of the class interval $120 - 130$ is...a)125 b)122.5 c)120 d)130

A. 120

B. 130

C. 122.5

D. 125

**Answer:**

**23.** The class width of the class interval $133 - 139$ is...a)3 b)5 c)6 d)4

A. 3

B. 5

C. 6

D. 4

Answer:

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**24.** The persons of O-blood group are 40%. The classification of persons based on blood groups is to be shown by a pie diagram. What should be the measures of angle for the persons of O-blood group? a)114° b)140° c) 104° d)144°

A. 114°

B. 140°

C. 104°

D. 144°

**Answer:**

**25.** For a certain frequency distribution median class is 129.5 to 134.5, $f = 30$ and c. $f = 24$ and $N = 100$, find the median.

**26.** Find the mean of the following data 12,18,15,17,11,10.

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