Grade 08
Unit 12

Maths

Course Outline

Summative-II

MAT

(Monthly Achievement Tests)

Short Code: 447309

Test ID: NMM08U120

SOUVENIR INFOTECH

Guide Lines

1. Each set consists of:

   50 | Warm-up/Foundation Questions

   30 | Regular Questions

   20 | Thinking Ability Questions

2. The time allocation and instructions regarding the questions are printed clearly in the beginning of each question types. The answers should be written or tick marked as per the instructions given. It is suggested to use pencil initially, so as to enable you to reuse the practice papers.

3. **According to the new pattern of CBSE these practice papers will be very useful especially for syllabus related Quiz, Debates, Visuals related checking and Orals etc.,**

4. After marking the answers, the scores of students can be checked and for marks obtained guidelines are given along with the question solving instructions. Follow those instructions and if, you are fully satisfied with your performance then check for your expected grades as per the CBSE guidelines as given on the back of each set.

5. Remember that this is only a guideline not the finally worked out result. You can further improve your performance by increase your practice.

6. For your convenience please follow following essential examiner's advices:

   a. Answer all the questions
   b. Read all the Options carefully
   c. Understand and use correct scientific language in your responses.

We from SOUVENIR INFOTECH **wish skillful learning for your bright future.**

Before going for the test, look at least :

1. First of all go through the syllabus of the test according to the **Course Outline** provided at the front page of each MAT.
2. After going through the syllabus once or twice or even more time as per your satisfaction, first of all do the Warm-up questions. If you score A+ grade in those 50 questions go to the next level otherwise go through the chapter again.
3. The box for **Specific Information** is very useful as it adds to your concept building. Try to fill specific information in the proper way so that you will get the maximum benefit of it.
4. **Let's Chat** portion will help you to prepare for oral assessment. Through this you can increase your capacity to interact on a particular topic related to your syllabus.
5. The **Extra Diet** portion is also there to enhance you knowledge through visulization of concept. This portion provides you added knowledge on various related concepts.
6. The information related to time factor is there to enhance your time management skills.
7. From the examiners point of view it is always advised to use Pencil for initial efforts. The use of pen is fruitful only when the final effort comes.

Examiner's Tips:

- Read the question carefully. Make sure you understand exactly what is required.
- If you find that you are unable to do a part of a question, do not give up. The next part may be easier and may provide a clue to what you might have done in the part you found difficult.
- Note the number of marks per question as guide to the depth of response needed.
- Underline or note the key words that tell you what is required.
- Underline or note data as you read the question.
- Structure your answer carefully.
- Show all steps in calculations. Include equations you use and show the substitution of data. remember to work according to units given.
- Make sure that your answers contain suitable significant figures (wherever necessary) and must include units in numericals.
- Draw diagrams and graphs carefully.
- Read data from graphs carefully; note scales and prefixes on axes.
- Keep your eye on the clock but don't panic.
- If you have time at the end, use it. Check that your descriptions and explanations make sense. Consider whether there is anything you could add to an explanation or description. Repeat calculations to ensure that you have not made a mistake.

50

Opening Window

To enlighten your fundamental/basic topic knowledge.

A+. If you score 45 or above marks, move to the next section confidently.

A. If you score between 40 and 45 marks, it is satisfactory. Bit more knowledge will bring excellent result.

B. If you score below 40, kindly go through the topic more seriously.

Section A (50 marks) **Time given – 50 minutes + 5 minutes for revision**

Questions 1 to 50 carry 1 mark each.

For each question, four options are given, one of them is the correct answer. Make your choice and write its name (a, b, c or d) in the answer box provided.

1. If 14 kg pulses cost Rs. 441, what is the cost of 22 kg of pulses?

(a) Rs. 627 (b) Rs. 649

(c) Rs. 671 (d) Rs. 693

T – 1 min
S – Direct & Indirect proportional

Ans.

2. The measures of two angles of a quadrilateral are 115° and 45°, and the other two angles are equal. Find the measure of each of the equal angles.

(a) 50° (b) 180°

(c) 100° (d) 90°

T – 1 min
S – Quadrilateral

Ans.

3. Two adjacent angles of a parallelogram are $(2x + 25)°$ and $(3x - 5)°$. The value of x is

(a) 28 (b) 32

(c) 36 (d) 42

T – 1 min
S – Quadrilateral

Ans.

4. The volume of a cube is 2744 cm^2. Its surface area is

(a) 196 cm^3 (b) 588 cm^2

(c) 784 cm^2 (d) 1176 cm.

T – 1 min
S – Mensuration

Ans.

5. The graph of $y = a$ is

(a) the x-axis (b) the y-axis

(c) a line parallel to y-axis (d) a line parallel to x-axis

T – 1 min
S – Introduction to graph

Ans.

6. The equation representating y-axis is

(a) $x = 0$ (b) $y = 0$

(c) $x = a$ (d) $y = a$

T – 1 min
S – Introduction to graphs

Ans.

7. The abscissa of a point is its distance from the

(a) origin (b) x-axis

(c) y-axis (d) none of these

T – 1 min
S – Introduction to graphs

Ans.

8. If 35% of the people residing in a locality are Sikhs then the central angle of the sector representing the Sikh community in the pie chart would be

(a) 180° (b) 150°

(c) 126° (d) 135°

T – 1 min
S – Data handling

Ans.

9. The ratio of the total surface area to the lateral surface area of a cylinder whose radius is 20 cm and height 60 cm, is

(a) 2 : 1 (b) 3 : 2

(c) 4 : 3 (d) 5 : 3

T – 1 min
S – Mensuration

Ans.

10. Five equal cubes, each of edge 5 cm, are placed adjacent to each other. The volume of the new solid formed will be

(a) 125 cm^3 (b) 375 cm^3

(c) 525 cm^3 (d) 625 cm^3

T – 1 min
S – Mensuration

Ans.

11. Find the length the longest pole that can be put in a room of a dimension 10 m by 10 m by 5 m.

(a) 10 cm (b) 15 cm

(c) 14 cm (d) 12 cm.

T – 1 min
S – Mensuration

Ans.

12. 1 cm = _____ mm.

(a) 10 (b) 100

(c) 1000 (d) none of these

T – 1 min
S – Mensuration

Ans.

13. Find the area of regular hexagon of side 5 cm

(a) 41.272 cm^2 (b) 40.568 cm^2

(c) 41.920 cm^2 (d) 41.568 cm^2

T – 1 min
S – Mensuration

Ans.

14. The bisectors of any two adjacent angles of a parallelogram intersect at
(a) 30° (b) 45°
(c) 60° (d) 90°

T – 1 min
S – Quadrilateral

Ans.

15. The diagonals do not necessarily bisect the interior angles at the vertices in a
(a) rectangle (b) square
(c) rhombus (d) all of these.

T – 1 min
S – Quadrilateral

Ans.

16. A fort had provisions for 300 men for 90 days. After 20 days, 50 men left the fort. How long would the food last at same rate?
(a) 70 days (b) 80 days
(c) 84 days (d) 75 days.

T – 1 min
S – Direct & Indirect proportional

Ans.

17. Factorise $pq^2 + q(p-1) - 1$
(a) $(pq+1)(q-1)$ (b) $p(q+1)(q-1)$
(c) $q(p-1)(q+1)$ (d) $(pq-1)(q+1)$

T – 1 min
S – Factorisation

Ans.

18. Factorise $m^2 - 4mn + 4n^2$
(a) $(m-2n)^2$ (b) $(m+2n)^2$
(c) $(m+n)^2$ (d) $(m-n)^2$

T – 1 min
S – Factorisation

Ans.

19. $121 - y^2$
(a) $(11-y)(11+y)$ (b) $(11+y)(11+y)$
(c) $(11-y)(11-y)$ (d) $11-y$

T – 1 min
S – Factorisation

Ans.

20. The age of A and B are in the ratio 3 : 8, six years from now, their ages will be in the ratio 4 : 9. The present age of A is
(a) 18 years (b) 15 years
(c) 12 years (d) 21 years.

T – 1 min
S – Direct & Indirect proportional

Ans.

Whether the following is True or False.

21. All squares are rhombuses and also rectangles.

T – 1 min
S – Visualising Solid Shapes

Ans.

22. For any positive integer 'x' we have $\sqrt[3]{-x} = -\sqrt[3]{x}$.

T – 1 min
S – Exponents

Ans.

23. A fraction with denominator 100 is called digit number.

T – 1 min
S – Fraction

Ans.

24. The perimeter of a plane figure is the length of its boundary.

T – 1 min
S – Mensuration

Ans.

25. Area of a rhombus $= \frac{1}{2} \times d_1 \times d_1$.

T – 1 min
S – Mensuration

Ans.

26. x is the square root of 'y' if $y = x^2$.

T – 1 min
S – Exponents

Ans.

27. In a plane, two lines which do not intersect are called parallel lines.

T – 1 min
S – Quadrilateral

Ans.

28. A line segment AB is said to be bisected at M, if M is a point of AB such that $AB = M$

T – 1 min
S – Lines segment

Ans.

29. A rhombus is a square If each of its angle is 180°.

T – 1 min
S – Quadrilateral

Ans.

30. Diagonals of a rectangle are equal.

T – 1 min
S – Quadrilateral

Ans.

Fill in the blanks

31. A _____ has all the property of a parallelogram.

T – 1 min
S – Quadrilateral

Ans.

32. Opposite sides of a parallelogram are equal and sum of a _____ angle is 180°.

T – 1 min
S – Quadrilateral

Ans.

33. Data mostly available to us in an unorganised form is called _____.

T – 1 min
S – Introduction to graph

Ans.

34. _____ means comparing two quantities.

T – 1 min
S – Direct & Indirect proportional

Ans.

35. The numerical factor of a term is called its _____.

T – 1 min
S – Exponents

Ans.

36. Each of the group 0-10, 10-20, 20-30 etc. are called _____.

T – 1 min
S – Introduction to graph

Ans.

37. _____ is a quantitative measure of certainity.

T – 1 min
S – Introduction to graph

Ans.

38. _____ gives the number of times that a particular entry occurs?

T – 1 min
S – Introduction to graph

Ans.

39. _____ means comparing two quantities.

T – 1 min
S – Direct & Indirect proportional

Ans.

40. All parallelograms are _____.

T – 1 min
S – Quadrilateral

Ans.

Simple Questions

41. Multiply the binomials $(2x+5)$ and $(4x-3)$

T – 1 min
S – Factorisation

Ans.

42. Use a suitable identity $(2y+5)(2y+5)$.

T – 1 min
S – Factorisation

Ans.

43. Solve $\frac{t}{5}=10$.

T – 1 min
S – Factorisation

Ans.

44. Add $ab - bc$, $bc - ca$, $ca - ab$

T – 1 min
S – Factorisation

Ans.

45. Expand $(2x - y^2)^3$

T – 1 min
S – Factorisation

Ans.

46. Factorise $x^2 + 10x + 9$

T – 1 min
S – Factorisation

Ans.

47. Divide $x^2 + 7x + 10$ by $x + 5$

T – 1 min
S – Factorisation

Ans.

48. The areas of two circles are in the ratio 25 : 36. Find the ratio of their circumference.

T	– 1 min
S	– Direct & Indirect proportional

Ans.

49. Find the area of trapezium whose bases are 24 cm and 16.4 cm and whose altitude is 1.5 dm.

T	– 1 min
S	– Quadrilateral

Ans.

50. Find the area of a parallelogram whose base is 12 cm, and the corresponding side being 7 cm.

T	– 1 min
S	– Quadrilateral

Ans.

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Opening Window

To enlighten your regular knowledge of topic. If you score more than 55 marks here, you have achieved this level brilliantly. Move to the next level of test papers.

Section B (60 marks) **Time given – 45 minutes + 5 minutes for revision**

Questions 51 to 80 carry 2 marks each.

51. Two numbers are in the ratio 5 : 3. If they differ by 18. What are the numbers?

T – 1 min
S – Direct & Indirect proportional

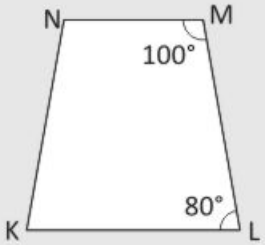
Ans.

52. $\frac{a}{5} = \frac{10}{25} = \frac{50}{b}$ find a and b.

T – 1 min
S – Direct & Indirect proportional

Ans.

53. Explain how this figure is a trapezium. Which of its two sides are parallel?



T – 1 min
S – Quadrilateral

Ans.

54. Identify the term and coefficient of $5xyz^2 - 3zy$

T – 1 min
S – Factorisation

Ans.

55. Add $2p^2q^2 - 3pq + 4, 5 + 7pq - 3p^2q^2$

T – 1 min
S – Factorisation

Ans.

56. Find the product of the pair of monomials $(3x + y^3)$.

T – 1 min
S – Factorisation

Ans.

57. Obtain the product of $2, 4y, 8y^2, 16y^3$

T – 1 min
S – Factorisation

Ans.

58. Simplify $(1.5x - 4y)(1.5x + 4y + 3) - 4.5x + 12y$

T – 1 min
S – Factorisation

Ans.

59. Using identities, evaluate $(99)^2$

T – 1 min
S – Factorisation

Ans.

60. Can a polyhedron have 10 faces, 20 edges and 15 vertices?

T – 1 min
S – Visualising Solid Shapes

Ans.

61. The diagonals of a Rhombus are 7.5 cm and 12 cm find its area.

T – 1 min
S – Mensuration

Ans.

62. A closed cylindrical tank of radius 7 m and height 3 m is made from a sheet of metal. How much sheet of metal is required?

T – 1 min
S – Mensuration

Ans.

63. A machine in a soft drink factory fills 840 bottles in six hours. How many bottles will it fill in five hours?

T – 1 min
S – Direct & Indirect proportional

Ans.

64. Find the common factors of $2x$, $3x^2$ and 4.

T – 1 min
S – Factorisation

Ans.

65. Factorise the expression of $p^2 - 10p + 25$

T – 1 min
S – Factorisation

Ans.

66. Divide $5(2x + 1)(3x + 5)$ by $(2x + 1)$

T – 2 min
S – Factorisation

Ans.

67. Find the values of the letters of

$$\begin{array}{r} 3A \\ +\,25 \\ \hline B2 \end{array}$$

T – 1 min
S – Playing with numbers

Ans.

68. Write '302' in the generalised form

T – 2 min
S – Playing with numbers

Ans.

69. Carry out the division of $66pq^2r^3 \div 11qr^2$

T – 2 min
S – Exponents

Ans.

70. $63a^2b^4c^6$ by $7a^2b^2c^2$

T – 2 min
S – Exponents

Ans.

71. Factorise $20l^2m + 30alm$

T – 2 min
S – Factorisation

Ans.

72. A car takes 2 hours to reach a destination by travelling at the speed of 60 km/h. How long will it take when the car travels at the speed of 80 km/h?

T	– 2 min
S	– Direct & Indirect proportional

Ans.

73. Simplify and write in exponential form $p^3 \times p^{-10}$

T	– 2 min
S	– Exponents

Ans.

74. Evaluate $\left(\frac{1}{2}\right)^{-3}$ $\left[\because \left(\frac{a}{b}\right)^{-3} = \left(\frac{a}{b}\right)^{3}\right]$

T	– 2 min
S	– Exponents

Ans.

75. Find the value of $(3^{\circ} + 4^{-1}) \times 2^2$

T	– 2 min
S	– Exponents

Ans.

76. Write the following numbers in standard form 0.000000564.

T – 2 min
S – Exponents

Ans.

77. Express the number in usual form 3.02×10^{-6}

T – 2 min
S – Exponents

Ans.

78. A cuboid is of dimensions 60 cm × 54 cm × 30 cm
How many small cubes with side 6 cm can be placed in the given cuboid?

T – 2 min
S – Mensuration

Ans.

79. Find the area of rectangles $(3mn, 4nP)$

T – 2 min
S – Mensuration

Ans.

80. Using $a^2 - b^2 = (a + b)(a - b)$ Find $(51)^2 - (49)^2$

T – 2 min
S – Factorisation

Ans.

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Opening Window

To enlighten your regular knowledge of topic. If you score more than 50 marks here, you have achieved this level brilliantly. Move to the next level of test papers.

Section C (60 marks) **Time given – 45 minutes + 5 minutes for revision**

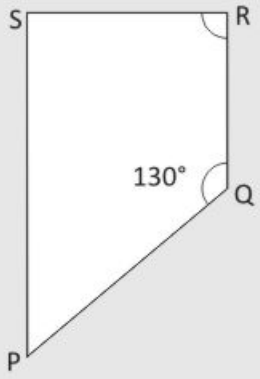
81. The sum of three consecutive numbers of 8 is 888. Find the multiples.

T – 2 min
S – Playing with numbers

Ans.

82. Find the measure of $\angle P$ and $\angle S$. If $\overline{SP}.\overline{RQ}$ (If you find $M\angle R$, is there more than one method to find $M\angle P$?)

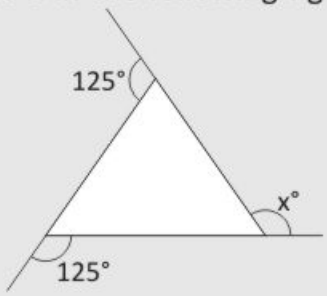
T – 2 min
S – Quadrilateral



Ans.

83. Find x in the following figure.

T – 2 min
S – Visualising Solid Shapes



Ans.

84. Find the length of the side of a square whose area is 441 m^2

T	– 2 min
S	– Mensuration

Ans.

85. Using Euler's formula find the unknown.

Faces	?	5	20
Vertices	6	?	12
Edges	12	9	?

T	– 2 min
S	– Visualising Solid Shapes

Ans.

86. The area of a trapezium is 34 cm^2 and the length of one of the parallel sides is 10 cm and Its height is 4 cm. Find the length of the other parallel side.

T	– 2 min
S	– Mensuration

Ans.

87. A road roller takes 750 complete revolutions to move once over to level a road. Find the area of the road if the diameter of a road roller is 84 cm and length is 1 m?

T	– 2 min
S	– Mensuration

Ans.

88. Find the value of m for which $5^m \div 5^{-3} = 5^3$

T – 2 min
S – Exponents

Ans.

89. A farmer has enough food to feed 20 animals in his cattle for 6 days. How long would its food last if there were 10 more animals in his cattle?

T – 2 min
S – Direct & Indirect proportional

Ans.

90. Factorise $a^4 - 2a^2b^2 + b^4$.

T – 2 min
S – Factorisation

Ans.

91. Draw the line passing through (2, 3) and (3, 2). Find the co-ordinates of the points at which this line meets the x-axis and y-axis.

T – 2 min
S – Introduction to graph

Ans.

92. Simplify $\frac{3^{-5}\times 10^{-5}\times 125}{5^{-7}\times 6^{-5}}$

T – 2 min
S – Exponents

Ans.

93. Factorise P^2+6P+8

T – 2 min
S – Factorisation

Ans.

94. Evaluate 98×103

T – 2 min
S – Factorisation

Ans.

95. Find the value of $8x^3+27y^3$, if $2x+3y=8$ and $xy=2$

T – 2 min
S – Factorisation

Ans.

96. Factorise $2x^2+y^2+8z^2-2\sqrt{2}\,xy-4\sqrt{2yz}+8xz$

T – 3 min
S – Factorisation

Ans.

97. Find the side of a cube whose surface area is 600 cm^2

T – 3 min
S – Mensuration

Ans.

98. Use a suitable identity $E\frac{x}{2}, \frac{3y^\circ}{A}\ E\frac{x}{2}, \frac{3y^\circ}{4}$

T – 3 min
S – Exponents

Ans.

99. Simplify $(4m+5n)^2+(5m+4n)^2$

T – 3 min
S – Factorisation

Ans.

100. Using $a^2-b^2=(a+b)(a-b)$. Find $(1.02)^2-(0.98)^2$.

T – 3 min
S – Factorisation

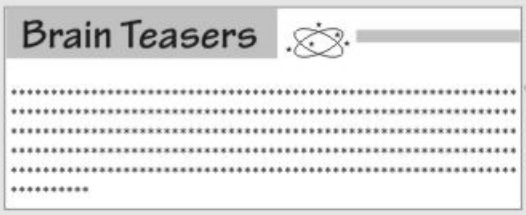
Ans.

Tools at a glance

Opening Window with instructions for your potential analysis and guideline to improve your performance.

Let's Chat, the feature with suggestive topics for discussion so as to improve your capacity to debate on various topics.

Box with time break-up of questions **(T)** and its concept (**S**, i.e., subject)



Brain Teasers i.e., Questions with difference to make the concepts of students crystal clear. These are the questions with higher difficulty levels to check the grip of the students over the concepts.

Extra Diet, the web link, the notation: www._____ to provide additional information regarding the concept for more clarity of thoughts.

CBSE GRADING PATTERN

As the new pattern includes **CCE** (Continuous and Comprehensive Evaluation) which will be run in two terms i.e., from April to September and October to March. Thus the school will conduct four **Formative** and two **Summative** Assessments.

However, the most generalised version of grades is given below:

MARKS PERCENTAGE	GRADE	GRADE POINT	CATEGORY
91 to 100	A1	10	Exceptional
81 to 90	A2	9	Excellent
71 to 80	B1	8	Very Good
61 to 70	B2	7	Good
51 to 60	C1	6	Ordinary
41 to 50	C2	5	Average
33 to 40	D	4	Below Average
21 to 32	E1	3	Improvement Needed
Below 20	E2	Below 2	Unsatisfactory