Grade 07
Unit 12

Maths

Course Outline

- Summative II

MAT

(Monthly Achievement Tests)

Short Code: 447308

Test ID: NMM07U120

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 Warm-up/Foundation Questions

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.

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. The reciprocal of $\frac{3}{7}$ is _____ .

T – 1 min
S – Rational numbers

(a) 7 (b) $\frac{7}{3}$

(c) 3 (d) $\frac{3}{7}$

Ans.

2. Divide $\frac{5}{9}$ by $\frac{2}{3}$.

T – 1 min
S – Rational numbers

(a) $\frac{5}{6}$ (b) $\frac{10}{3}$

(c) $\frac{15}{2}$ (d) $\frac{5}{3}$

Ans.

3. Express $\frac{-247}{228}$ in standard form.

T – 1 min
S – Rational numbers

(a) $\frac{-12}{13}$ (b) $\frac{13}{12}$

(c) $\frac{13}{11}$ (d) $\frac{-13}{12}$

Ans.

4. Which of the two rational numbers is greater, $\frac{3}{5}$ or $\frac{4}{3}$?

T – 1 min
S – Rational numbers

(a) $\frac{3}{5}$ (b) $\frac{4}{3}$

(c) Both (d) None of these

Ans.

5. $\left(\frac{2}{5}\right)^3 \times \left(\frac{2}{5}\right)^2 = \left(\frac{2}{5}\right)^x$. Find the value of x.

T – 1 min
S – Exponent

(a) 5 (b) 6
(c) 7 (d) 8

Ans.

6. Express $(-2)^{-5}$ as a rational number.

T – 1 min
S – Exponents and powers

(a) $\left(\frac{-1}{2}\right)^{-5}$ (b) $\left(\frac{1}{-2}\right)^5$
(c) $\frac{1}{-2}$ (d) $\frac{1}{5}$

Ans.

7. The $\frac{P}{Q}$ form of $0.\overline{3}$ is

T – 1 min
S – Rational numbers

(a) $\frac{1}{3}$ (b) $\frac{1}{133}$
(c) $\frac{1}{333}$ (d) $\frac{1}{3333}$

Ans.

8. The $\frac{P}{Q}$ form of $0.\overline{585}$ is

T – 1 min
S – Rational numbers

(a) $\frac{585}{999}$ (b) $\frac{1}{585}$
(c) $\frac{100}{585}$ (d) $\frac{1000}{585}$

Ans.

9. If $\frac{x+3}{x-4} = \frac{6}{5}$, then

T – 1 min
S – Rational numbers

(a) 34 (b) 37
(c) 38 (d) 39

Ans.

10. The length of a rectangular field is twice its breadth. If the perimeter of the field is 72 m, then what is its breadth?

T – 1 min
S – Perimeter and area

(a) 13 m (b) 26 m
(c) 12 m (d) 10 m

Ans.

True or False

11. Zero is the smallest rational number.

T – 1 min
S – Rational numbers

Ans.

12. Every rational number is a fraction.

T – 1 min
S – Rational numbers

Ans.

13. The quotient of two integers is always a rational number.

T – 1 min
S – Rational numbers

Ans.

14. $\frac{-15}{18}$ and $\frac{5}{-6}$ are equivalent rational number.

T – 1 min
S – Rational numbers

Ans.

15. A quantity which takes on different numerical values is known as constant.

T – 1 min
S – Algebraic expressions

Ans.

16. Perimeter of a rectangle $= 2(l + b)$

T – 1 min
S – Perimeter and area

Ans.

17. In rectangle, number of lines of symmetry is 6.

T – 1 min
S – Symmetry

Ans.

18. A cube can cast a shadow in the shape of a hexagon.

T – 1 min
S – Visualising solid shapes

Ans.

19. A net is a skeleton outline of a solid shape.

T – 1 min
S – Visualising solid shapes

Ans.

20. An oblique sketch does not have proportional lengths.

T – 1 min
S – Visualising solid shapes

Ans.

Fill in the blanks

21. A number that can be expressed in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$ is called a _____ .

T – 1 min
S – Rational numbers

Ans.

22. _____ percentage is Rs. 15 of Rs. 120.

T – 1 min
S – Algebraic expressions

Ans.

23. $\left(\frac{a}{b}\right)^0 =$ _____ .

T – 1 min
S – Exponents and powers

Ans.

24. $\left[\left(\frac{a}{b}\right)^m\right]^n = \left(\frac{a}{b}\right)$—

T – 1 min
S – Exponents and powers

Ans.

25. Every positive rational number is greater than _____ .

T – 1 min
S – Rational numbers

Ans.

26. $\frac{-3}{8} = \frac{-3 \times 2}{8 \times 2} =$ _____

T – 1 min
S – Rational numbers

Ans.

27. $\frac{5}{4} = \frac{\quad}{16} = \frac{25}{\quad} = \frac{-15}{\quad}$

T – 1 min
S – Rational numbers

Ans.

28. Sum of all sides of square is knows as _____ .

T – 1 min
S – Perimeter and area

Ans.

29. $4^2 \times 2^3 = (4 \times 2)^3 =$ _____

T – 1 min
S – Exponents and powers

Ans.

30. A cube or cuboid figure has _____ vertices.

T – 1 min
S – Visualising solid shapes

Ans.

Answer the following Questions.

31. Express $\frac{3}{5}$ as a rational number with denominator = 45.

T – 1 min
S – Rational numbers

Ans.

32. Express $\frac{-21}{13}$ as a rational number with positive numerator.

T – 1 min
S – Rational numbers

Ans.

33. Which of them are positive rational numbers?
$\frac{3}{5}, \frac{-3}{-2}, \frac{-3}{2}, \frac{5}{-3}, -\frac{4}{3}$

T – 1 min
S – Rational numbers

Ans.

34. $\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2} =$

T – 1 min
S – Exponents and powers

Ans.

35. $\left[\left\{\left(\frac{-1}{4}\right)^{2}\right\}^{-2}\right]^{-1} =$

T – 1 min
S – Exponents and powers

Ans.

36. Find x so that $\left(\frac{3}{5}\right)^{3} \times \left(\frac{3}{5}\right)^{-6} = \left(\frac{3}{5}\right)^{2x-1}$

T – 1 min
S – Exponents and powers

Ans.

37. Express $\frac{5}{-8}$ as a rational number with

(i) numerator 25

(ii) denominator 32

T – 1 min
S – Rational numbers

Ans.

38. Write each of the following rational number in standard form

(i) $\frac{56}{49}$ (ii) $\frac{24}{-48}$ (iii) $\frac{-81}{90}$

T – 1 min
S – Rational numbers

Ans.

39. Fill in the blanks :

(a) $\frac{-9}{4} = \frac{\quad}{20} = \frac{27}{\quad}$ (b) $\frac{-4}{11} = \frac{-12}{\quad} = \frac{\quad}{55}$

T – 1 min
S – Rational numbers

Ans.

40. Find x such that $\frac{7}{-3} = \frac{x}{6}$.

T – 1 min
S – Rational numbers

Ans.

41. Find if $\frac{-3}{9}$ and $\frac{7}{-21}$ are equal.

T – 1 min
S – Rational numbers

Ans.

42. Arrange the following rational numbers in ascending order
$\frac{2}{5}, \frac{7}{10}, \frac{8}{15}, \frac{13}{30}$.

T – 1 min
S – Rational numbers

Ans.

43. Simplify $\frac{8}{-27} + \frac{13}{18}$.

T – 1 min
S – Rational numbers

Ans.

44. Add $\frac{11}{8}$ and $\frac{-7}{12}$.

T	– 1 min
S	– Rational numbers

Ans.

45. What should be added to $\frac{-5}{9}$ to obtain 3.

T	– 1 min
S	– Rational numbers

Ans.

46. Find the area of a square park whose perimeter 320 m.

T	– 1 min
S	– Perimeter and area

Ans.

47. If the circumference of a circular sheet is 154 m, find its radius. Also find the area of the sheet.

T	– 1 min
S	– Perimeter and area

Ans.

48. Smita's mother is 36 years old. Two years from now mother's age will be 4 times Smita's age. What is Smita's present age?

T	– 1 min
S	– Algebraic expressions

Ans.

49. Find the area of circle whose radius = 14 mm.

T	– 1 min
S	– Perimeter and area

Ans.

50. Find the perimeter of the following figure.

T	– 1 min
S	– Perimeter and area

Ans.

30 Regular Questions

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. Find $\left[\frac{13}{8}\times\frac{16}{13}\right]+\left[\frac{-4}{9}\times\frac{3}{-4}\right]$.

T – 1 min
S – Rational numbers

Ans.

52. Multiply $\frac{-12}{5}$ by -15.

T – 1 min
S – Rational numbers

Ans.

53. Simplify $\left[\frac{3}{4}\right]^{-2}\times\left[\frac{2}{6}\right]^{-3}$

T – 1 min
S – Exponents and powers

Ans.

54. Find the product of $-3x^2 \times 5x^3$

T	– 1 min
S	– Algebraic expressions

Ans.

55. The length of a rectangular field is twice its breadth. If the perimeter of the field is 150 m. Find its length and breadth.

T	– 1 min
S	– Algebraic expressions

Ans.

56. A number has two digits whose sum is 9. If 27 is added to the number, its digits get interchanged. Find the number.

T	– 1 min
S	– Algebraic expressions

Ans.

57. Sumitra has Rs. 34 in fifty paise and twenty five paise coins. If the number of 25 paise coins is twice the number of 50 paise coins, how many coins of each kind does she have?

T	– 1 min
S	– Algebraic expressions

Ans.

58. Find the area of circle whose radius 4.9 cm? ($\pi = \frac{22}{7}$).

T	– 1 min
S	– Perimeter and area

Ans.

59. The circumference of a circle exceeds its diameter by 18 cm. Find the radius of the circle.

T	– 1 min
S	– Perimeter and area

Ans.

60. The area of the square plot is 6084 m^2. Find the length of the wire which can go four times along the boundary of the plot.

T	– 1 min
S	– Perimeter and area

Ans.

61. The floor of a rectangular hall has a perimeter 250 m. If its height is 6 m. Find the cost of painting its four walls at the rate of Rs. 20/m^2.

T	– 1 min
S	– Perimeter and area

Ans.

62. A poster of size 20 cm by 16 cm is pasted on a sheet of a card board such that there is margin of 3.5 cm long each side of the poster find

(i) The total area of the margin.

(ii) The cost of the card board used at the rate of Rs. 1.20 per cm^2.

T	– 1 min
S	– Perimeter and area

Ans.

63. Draw a right triangle with hypotenuse 5.5 cm and one side of length 4 cm.

T	– 1 min
S	– Practical geometry

Ans.

64. Find the area of rectangular length = 12 cm, breadth = 8 cm.

T	– 1 min
S	– Perimeter and area

Ans.

65. Find the perimeter of the square whose side is 15 cm.

T	– 1 min
S	– Perimeter and area

Ans.

66. Find the circumference of a circle whose radius is 3.64 cm. $\left(\pi = \frac{22}{7}\right)$

T	– 2 min
S	– Perimeter and area

Ans.

67. A wire is in the shape of a rectangle. Its length is 40 cm and breadth is 22 cm. If the same wire is rebent in the shape of square. What will be the measure of each side? Also find which shape encloses more area.

T	– 2 min
S	– Perimeter and area

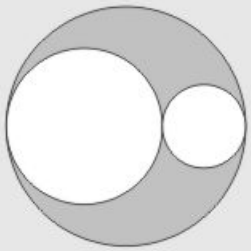
Ans.

68. ΔABC is isosceles with $AB = AC = 7.5$ cm and $BC = 9$ cm. The height from A to BC i.e., AD is 6 cm. Find the area of ΔABC. What will be the height from C to AB. i.e CM?

T	– 2 min
S	– Perimeter and area

Ans.

69. In the given figure, a circle of diameter 21 cm is given. Inside this circle, two circles with diameters $\frac{2}{3}$ and $\frac{1}{3}$ of the diameter of the big circle have been drawn, as shown in the given figure. Find the area of the shaded region.



T	– 2 min
S	– Perimeter and area

Ans.

Simplify:

70. $\left(\frac{-2}{3}\right)^4 \div \frac{81}{16}$

T	– 2 min
S	– Exponents and powers

Ans.

71. Evaluate $\left[\left(\frac{1}{4}\right)^0 + \left(\frac{1}{8}\right)^0\right] \div \left[\left(\frac{3}{13}\right)^0 + \left(\frac{5}{32}\right)^0\right]$

T	– 2 min
S	– Exponents and powers

Ans.

72. $\left(\frac{9}{4}\right)^0 \div \left(\frac{9}{4}\right)^0$

T – 2 min
S – Exponents and powers

Ans.

73. $\left[(-9)^0 \div \left(\frac{1}{3}\right)^0\right] \div \left(\frac{2}{7}\right)^0$

T – 2 min
S – Exponents and powers

Ans.

74. Write the following numbers in usual form:
(a) 6.389×10^5 (b) 8.425×10^8

T – 2 min
S – Exponents and powers

Ans.

75. One side of a parallelogram is 14 cm. Its distance from the opposite side is 16.5 cm. Find the area of the parallelogram.

T – 2 min
S – Perimeter and area

Ans.

76. A room is 7 m long and 5 m broad. It has one door measuring 2 m by 1.5 m and two windows, each measuring 1.5 m by 1 m. The cost of painting the walls of the room at Rs. 7.50 per m^2 is Rs. 495. Find the height of the room.

T – 2 min
S – Perimeter and area

Ans.

77. Express the following decimal numbers as a rational number:
(a) –3.25 (b) 0.45

T – 2 min
S – Rational numbers

Ans.

78. Find the six rational numbers between $\frac{3}{8}$ and $\frac{1}{2}$.

T – 2 min
S – Rational numbers

Ans.

79. If three cubes of 4cm are placed above each other what would be the dimensions of the new object.

T	– 2 min
S	– Visualising solid shapes

Ans.

80. Draw a net of cuboid.

T	– 2 min
S	– Visualising solid shapes

Ans.

20 Thinking Ability Questions

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. Find the area of a rectangular park which is $31\frac{2}{3}$ m long and $11\frac{3}{5}$ m broad.

T – 1 min
S – Perimeter and area

Ans.

82. Each side of square is $4\frac{1}{3}$ m. Find its area.

T – 1 min
S – Perimeter and area

Ans.

83. The product of 2 rational numbers is 10. If one of the number is –8. Find the other.

T – 1 min
S – Rational numbers

Ans.

84. By what number should $(-30)^{-1}$ be divided. So that quotient is $(6)^{-1}$.

T – 2 min
S – Exponents and powers

Ans.

85. Multiply $\frac{-2}{3}a^2b$ by $\frac{6}{5}a^3b^2$ and find the result for $a=2$ and $b=3$.

T – 2 min
S – Algebraic expressions

Ans.

86. Simplify $\left(\frac{1}{3}y^2-\frac{4}{7}y+5\right)-\left(\frac{2}{7}y-\frac{2}{3}y^2+2\right)-\left(\frac{1}{7}y-3+2y^2\right)$

T – 2 min
S – Algebraic expressions

Ans.

87. Take away $\left(\frac{8}{5}x^2-\frac{2}{3}x^3+\frac{3}{2}x-1\right)$ from $\left(\frac{x^3}{5}-\frac{3}{2}x^2+\frac{2}{3}x+\frac{1}{4}\right)$

T	– 2 min
S	– Algebraic expressions

Ans.

88. Two equal sides of triangles are each 5 metres less than twice the third side. If the perimeter of the triangle is 55 metre. Find the length of its sides?

T	– 2 min
S	– Algebraic expressions

Ans.

89. If $5x-\frac{3}{4}=2x-\frac{2}{3}$, then the value of x is

T	– 2 min
S	– Algebraic expressions

Ans.

90. A man travelled $\frac{3}{5}$ of his journey by rail, $\frac{1}{4}$ by a taxi, $\frac{1}{8}$ by a bus and the remaining 8 km on foot. What is the length of his total journey?

T – 2 min
S – Algebraic expressions

Ans.

91. If $\frac{x-1}{x+1}=\frac{7}{9}$, then the value of x is

T – 2 min
S – Algebraic expressions

Ans.

92. The sum of two consecutive odd number is 36. The smaller one is

T – 2 min
S – Algebraic expressions

Ans.

93. The length and breadth of a rectangular field are in the ratio 3 : 2. If the area of the field is 3456 m^2. Find the cost of fencing the field at Rs. 3.50 per metre.

T – 3 min
S – Perimeter and area

Ans.

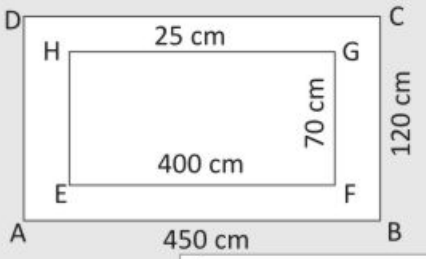
94. A hall is 36 m long and 24 m broad. Allowing 40 m^2 for doors and windows, the cost of papering the walls at Rs. 8.40 per square metre is Rs. 4704. Find the height of the hall.

T – 3 min
S – Perimeter and area

Ans.

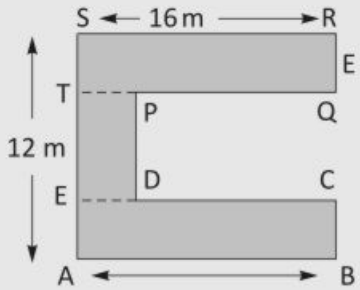
95. A saree 4.5 m long and 1.2 m wide has a 25 cm wide border all around it on the inside. Find the cost of wearing the border at 15 paise per cm^2.

T – 3 min
S – Perimeter and area



Ans.

96. Calculate the area of the shaded region in the figure given.



T – 3 min
S – Perimeter and area

Ans.

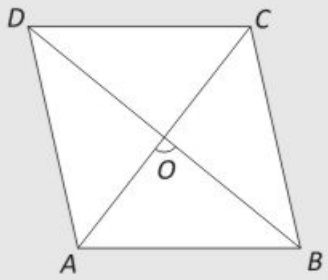
97. The base of a triangular field is three times its altitude. If the cost of cultivating the field at Rs. 280 per hectare is Rs. 3780. Find its base and altitude.

T – 3 min
S – Perimeter and area

Ans.

98. If the area of a rhombus is 96 cm^2 and one of its diagonals is 16 cm. Find its perimeter.

T	– 3 min
S	– Perimeter and area



Ans.

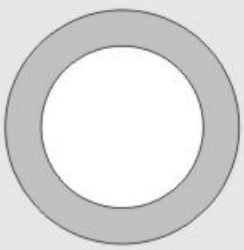
99. The area of a circular tin plate is 38.5 m^2. Find its circumference.

T	– 3 min
S	– Perimeter and area

Ans.

100. From a circular sheet of radius 4 cm, a circle of radius 3 cm is removed. Find the area of the remaining sheet.

T	– 3 min
S	– Perimeter and area



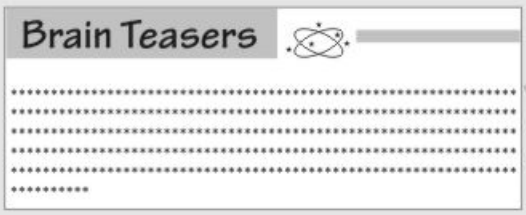
Ans.

Tools at a glance

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

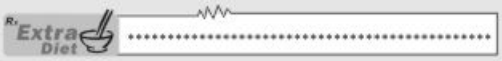
Let's Chat, the feature with suggestive topics for discussion so as to improve your capacity to debate on various topics.

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