Grade 08
Unit 06

Maths

Course Outline

Summative-I

MAT

(Monthly Achievement Tests)

Short Code: 447309

Test ID: NMM08U060

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.

1. The difference of two Rational numbers is a

   (a) Integers (b) Rational number

   (c) Whole number (d) None of these

   T – 1 min
   S – Linear equation

   Ans.

2. $\sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$ and $\sqrt{\frac{a}{b}} =$

   (a) $\sqrt{a \times b}$ (b) $\frac{\sqrt{a}}{\sqrt{b}}$

   (c) $\sqrt{a = b}$ (d) None of these.

   T – 1 min
   S – Square root

   Ans.

3. $5^{-3} =$

   (a) 125 (b) $\frac{1}{25}$

   (c) $\frac{1}{125}$ (d) 25.

   T – 1 min
   S – Exponents

   Ans.

4. Find the square root of 441.

   (a) 21 (b) 22

   (c) 23 (d) 25

   T – 1 min
   S – Square root

   Ans.

5. Express $\frac{-4}{7}$ as a rational number with denominator 28.

   (a) 16 (b) – 16

   (c) 14 (d) 12

   T – 1 min
   S – Rational numbers

   Ans.

6. $\frac{-2}{7}$ _____ $\frac{-1}{7}$

(a) $<$ (b) $>$

(c) $=$ (d) None of these.

T – 1 min
S – Rational numbers

Ans.

7. Additive inverse of $\frac{-4}{7}$

(a) $\frac{-4}{7}$ (b) $\frac{7}{-4}$

(c) $\frac{4}{7}$ (d) $\frac{-7}{4}$

T – 1 min
S – Rational number

Ans.

8. $-3 \times -3 \times -3 \times -3 =$

(a) 81 (b) -81

(c) 12 (d) -12.

T – 1 min
S – Exponents

Ans.

9. $8x + 3 = 27$

(a) 3 (b) 4

(c) 2 (d) 1

T – 1 min
S – Linear equation

Ans.

10. $x^3 \times x^{-4} =$

(a) x (b) $\frac{1}{x}$

(c) x^7 (d) x^{-7}

T – 1 min
S – Exponents

Ans.

11. $4x^2y^2z \div xyz$

(a) $4xyz$ (b) $4x^2y^2z$

(c) $4xy$ (d) $4xyz^2$

T – 1 min
S – Monomial

Ans.

12. $x^2 + y^2 - 2xy =$

(a) $(x + y)^2$ (b) $(x - y)^2$

(c) $(x - y)(x + y)$ (d) None of these.

T – 1 min
S – Linear equation

Ans.

13. Rajan buys a clock for Rs. 75 and sells it for Rs. 100. His gain percent is

(a) 25% (b) $33\frac{1}{3}\%$

(c) 20% (d) $37\frac{1}{2}\%$.

T – 1 min
S – Comparing quantities

Ans.

14. Find the amount of Rs. 8000 for 3 years, compounded annually at 5% per annum. Also, find the compound interest.

(a) Rs. 1260 (b) Rs. 1261

(c) Rs. 1200 (d) Rs. 1651

T – 1 min
S – Comparing quantities

Ans.

15. One pipe fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 36 minutes then the slower pipe alone will be able to fill the tank in

(a) 81 min (b) 108 min

(c) 144 min (d) 192 min.

T – 1 min
S – Linear equation

Ans.

16. A bat is bought for Rs. 120 and sold for Rs. 105 the loss percent is

(a) $12\frac{1}{2}\%$ (b) $14\frac{1}{5}\%$

(c) 15% (d) $16\frac{2}{3}\%$

T – 1 min
S – Comparing quantities

Ans.

17. Two complementary angles differ by 16°. Find the angles

(a) 53°, 37° (b) 56°, 40°

(c) 62°, 28° (d) 59°, 31°

T – 1 min
S – Geometry

Ans.

18. $(x+2)+(x+3)=7$

(a) 1 (b) 2

(c) 3 (d) 0

T – 1 min
S – Linear equation

Ans.

19. $\sqrt[3]{125\times 64}$

(a) 25 (b) 20

(c) 16 (d) 8

T – 1 min
S – Cube root

Ans.

20. 502^2-498^2

(a) 400 (b) 40000

(c) 4000 (d) 4

T – 1 min
S – Algebraic expression

Ans.

Whether the following is True or False.

21. The additive inverse of the rational number $\frac{a}{b}$ is $\frac{a}{b}$ and vice-versa.

T – 1 min
S – Rational numbers

Ans.

22. If a natural number 'm' can be expressed as n^2, where n is also a natural number, then m is cube root.

T – 1 min
S – Squares

Ans.

23. A perfect cube does not end with two zeros.

T – 1 min
S – Cube

Ans.

24. $a \times (b + c) = a \times b + b \times c$.

T – 1 min
S – Algebraic expressions

Ans.

25. A perfect cube does not end with two zeros.

T – 1 min
S – Cube

Ans.

26. A monomial multiplied by a monomial always gives a binomial.

T – 1 min
S – Linear equation

Ans.

27. A real number which is not rational is called a rational number.

T – 1 min
S – Rational numbers

Ans.

28. If p and q are perfect square then $\sqrt{\frac{p}{q}}$ is a rational number.

T – 1 min
S – Rational numbers

Ans.

29. Degree of the remainder is always less than that of the multiplier.

T – 1 min
S – Square

Ans.

30. Find the square of 32.

T – 1 min
S – Square

Ans.

Fill in the blanks

31. The reciprocal of -5 is _____.

T – 1 min
S – Rational number

Ans.

32. A linear equation may have for its solution any _____ number.

T – 1 min
S – Rational numbers

Ans.

33. Squares of odd numbers are always _____.

T – 1 min
S – Squares

Ans.

34. _____ is the inverse operation of square.

T – 1 min
S – Square root

Ans.

35. The product of two rational numbers is always a _____.

T – 1 min
S – Rational numbers

Ans.

36. The reciprocal of a positive rational number is _____.

T – 1 min
S – Rational numbers

Ans.

37. If a number 1 or 9 is in the unit's place then it's square ends in ___.

T – 1 min
S – Squares

Ans.

38. If square of a number ends with 5 then its cube ends with ____.

T – 1 min
S – Cube

Ans.

39. An algebraic expression having two terms is called _____.

T – 1 min
S – Algebraic expression

Ans.

40. Expressions are formed from variable and _____.

T – 1 min
S – Algebraic expression

Ans.

41. Solve the equation and verify your answer for $3x = 2x + 18$.

T – 1 min
S – Linear equation

Ans.

42. Find the square of 32.

T – 1 min
S – Squares

Ans.

43. Find the square root of 2304.

T – 1 min
S – Square root

Ans.

44. Identify the terms $\frac{x}{2}+\frac{y}{2}-xy$

T – 1 min
S – Algebraic expression

Ans.

45. Find $\left\{\frac{7}{5}\times\left(\frac{-3}{12}\right)\right\}+\left\{\frac{7}{5}\times\frac{5}{12}\right\}$ using distributivity.

T – 1 min
S – Rational numbers

Ans.

46. $15\frac{8}{9}$ is multiplicative inverse of $-1\frac{1}{8}$? Why or Why not?

T – 1 min
S – Rational numbers

Ans.

47. Solve $\frac{5x-7}{3x}=2$

T – 1 min
S – Linear equation

Ans.

48. Solve $5x+9=5+3x$

T – 1 min
S – Linear equation

Ans.

49. Find the product of $-4P$ and $7P$

T – 1 min
S – Linear equation

Ans.

50. Find the HCF of $2y$, $22xy$

T – 1 min
S – Linear equation

Ans.

30

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. Using appropriate properties calculate $-\frac{2}{3}\times\frac{3}{5}+\frac{5}{2}-\frac{3}{5}\times\frac{1}{6}$

T – 1 min
S – Rational number

Ans.

52. Multiply $\frac{6}{13}$ by the reciprocal of $\frac{-7}{16}$.

T – 1 min
S – Rational number

Ans.

53. How many natural numbers lie between a^2 and 10^2 and between 11^2 and 12^2?

T – 1 min
S – Squares

Ans.

54. Find the square of 86^2

T	– 1 min
S	– Squares

Ans.

55. Find the square root of 529.

T	– 1 min
S	– Square root

Ans.

56. An almirah is sold at Rs. 5,225 after allowing a discount of 5%. Find its marked price?

T	– 1 min
S	– Comparing Quantities

Ans.

57. Find interest and amount to be paid on Rs. 15000 at 5% per annum after 2 years?

T	– 1 min
S	– Comparing Quantities

Ans.

58. A scooter was bought at Rs. 42,000. Its value depreciated at the rate of 8% per annum. Find its value after one year?

T – 1 min
S – Comparing Quantities

Ans.

59. Write the additive inverse of $\frac{-6}{-5}$

T – 1 min
S – Rational number

Ans.

60. Verify that $-(-x) = x$ for $x = -\frac{13}{17}$.

T – 1 min
S – Rational number

Ans.

61. Multiply $\frac{6}{11}$ by the reciprocal of $\frac{-7}{16}$.

T – 1 min
S – Rational number

Ans.

62. Solve the equations $\frac{3}{7} + x = \frac{17}{7}$

T	– 1 min
S	– Linear equation

Ans.

63. A grand father is 10 times older than his grand daughter. He is also 54 years older than his grand daughter find their present ages.

T	– 1 min
S	– Algebraic expression

Ans.

64. A rational number is such that when you multiply it by $\frac{5}{2}$ and add $\frac{2}{3}$ to the product, you get $\frac{-7}{12}$ What is the number?

T	– 1 min
S	– Rational number

Ans.

65. $\frac{x-5}{3}=\frac{x-3}{5}$ Find x?

T – 1 min
S – Linear equation

Ans.

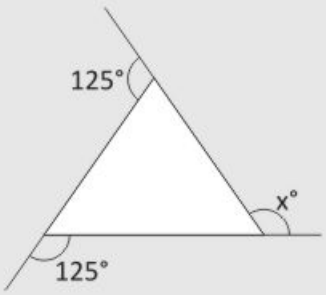
66. Find z? $3(5z-7)-2(9z-11)=4(8z-13)-17$

T – 2 min
S – Linear equation

Ans.

67. Find x in the following figure.

T – 2 min
S – Geometry



Ans.

68. Find the cube root by prime factorisation method for 10648

T – 2 min
S – Cube root

Ans.

69. If Chameli had Rs. 600 left after spending 75% of her money, how much did she have in the beginning?

T – 2 min
S – Comparing Quantities

Ans.

70. A machinery worth Rs. 10,500 depreciates by 5%, find its value after one year.

T – 2 min
S – Comparing Quantities

Ans.

71. Find the product $(5 - 2x)(6 + x)$.

T – 2 min
S – Linear equation

Ans.

72. Simplify $(a+b+c)(a+b-c)$.

T – 2 min
S – Algebraic expression

Ans.

73. Find the correct mathematical statement.
$x(3x+2)=3x^2+2$

T – 2 min
S – Linear equation

Ans.

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

T – 2 min
S – Linear equation

Ans.

75. Solve the equation and check your result $3x=2x+18$

T – 2 min
S – Linear equation

Ans.

76. Two adjacent angles of a parallelogram have equal measure. Find the measure of each of the angles of the parallelogram.

T	– 2 min
S	– Quadrilateral

Ans.

77. Find the square of 71.

T	– 2 min
S	– Square

Ans.

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

T	– 2 min
S	– Square root

Ans.

79. A shopkeeper boys 80 articles for Rs. 2,400 and sells them for a profit of 16%. Find the selling price of one article.

T	– 2 min
S	– Comparing Quantities

Ans.

80. Find C.I. on a sum of Rs. 8000 for 2 years at 5% per annum compounded annually

T	– 1 min
S	– Comparing Quantities

Ans.

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 population of a city after 2 years, which is at present 12 lakh, If the rate of increase is 4%.

T – 2 min
S – Comparing quantities

Ans.

82. Find the square root of the decimal number 0.008281.

T – 2 min
S – Square root

Ans.

83. Yogita sold a plot of land at 2% gain to Dimpi. Dimpi Sold it to Anjali at 10% profit If Anjali had to pay Rs. 330000 for the profit. Find the C.P. of the plot for Yogita?

T – 2 min
S – Comparing quantities

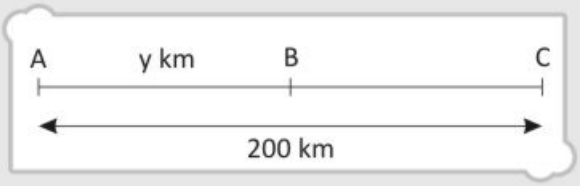
Ans.

84. The distance between towns A and B is y km. The distance between town A and Town C is 200 km. To go to town C, one has to pass through town B.

(a) How much farther from town A is town C than town B?

(b) If the distance between town B and town C is 80 km, how far is town B from town A?

T	– 2 min
S	– Linear equation in one variable



Ans.

85. The volume of water in pail A is 6 litres. The volume of water in pail B is y litres. The volume of water in pail C is $\frac{1}{3}$ of the volume of water in pail B.

(a) Express in terms of y, the volume of the water in pail C.

(b) If the capacity of pail C is 1 litre, what is the total capacity of the 3 pails?

T	– 2 min
S	– Linear equation in one variable

Ans.

86. There are 3 times as many 25 paise coins as 50 paise coins in a bag. There are w 50 paise coins in the bag.

(a) Express the total number, in terms of w, of coins in the bag.

(b) If the total value of 25 paise coins is Rs 18, how many 50 paise coins are there in the bag.

T	– 2 min
S	– Linear equation in one variable

Ans.

87. Simplify and verify the result for $x = 2, y = 1, z = -1$

(a) $(x + yz)(y + zx)(z + xy)$

(b) $x(x^2 + y + z) - y(x + y^2 + z) + z(x - y + z^2)$

T	– 2 min
S	– Linear equation

Ans.

88. Find the compound interest on Rs. 8,000 for 2 years at $12\frac{1}{2}$% per annum.

T – 2 min
S – Comparing quantities

Ans.

89. A sum of money amounts to Rs. 453690 in 2 years at 6.5% per annum compounded annually. Find the sum.

T – 2 min
S – Comparing quantities

Ans.

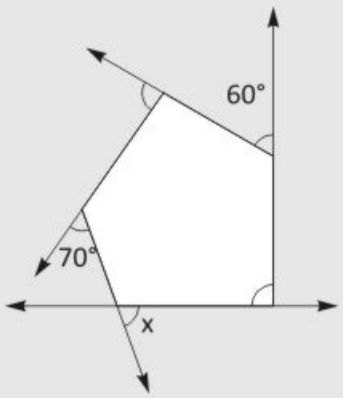
90. Simplify and solve the equation $15(y-4)-2(y-9)+5(y+6)=0$

T	– 2 min
S	– Linear equation

Ans.

91. Find 'x' in the figure.

T	– 2 min
S	– Quadrilaterals



Ans.

92. A table marked at Rs. 15,000 is available for Rs. 14,400. Find the discount given and the discount percent.

T	– 2 min
S	– Comparing quantities

Ans.

93. Arun bought a pair of skates in a sale, where the discount given was 20%. If the amount he pays is Rs. 1,600. Find the market price.

T	– 2 min
S	– Comparing quantities

Ans.

94. Multiply the binomial $(a + 3b)$ and $(x + 5)$

T	– 1 min
S	– Linear equations

Ans.

95. Subtract $4a - 7ab + 3b + 12$ from $12a - 9ab + 5b - 3$.

T – 2 min
S – Linear equation

Ans.

96. A rectangular plot is $21\frac{1}{3}$ m long and $21\frac{1}{3}$ m wide. Find its area.

T – 3 min
S – Mensuration

Ans.

97. The perimeter of a rectangular field is 146 m. If its length is $42\frac{1}{2}$ m, what is its width?

T – 3 min
S – Mensuration

Ans.

98. Insert a rational number between $(x-y)^{-1}$ and $x^{-1}-y^{-1}$, where $x=\frac{2}{3}$ and $y=\frac{3}{4}$.

T – 3 min
S – Rational numbers

Ans.

99. Find the single discount equivalent to two successive discounts of 20% and 10%.

T – 3 min
S – Comparing quantities

Ans.

100. The marked price of a ceiling fan is Rs. 1250 and the shopkeeper allows a discount of 6% on it. Find the selling price of the fan.

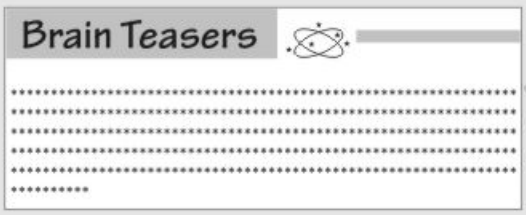
T – 3 min
S – Comparing quantities

Tools at a glance

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

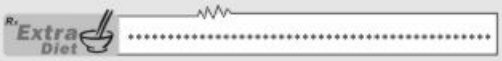
Let's Chat, the feature with suggestive topics for discussion so as to improve your capacity to debate on various topics.

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