Grade 07
Unit 07

Maths

Course Outline

- Rational numbers
- Practical Geometry

MAT

(Monthly Achievement Tests)

Short Code: 447308

Test ID: NMM07U070

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. Multiplicative inverse of $\frac{4}{-3}$ is

T – 1 min
S – Rational numbers

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

(c) $\frac{3}{4}$ (d) $\frac{-4}{3}$

Ans.

2. Multiplicative inverse of $\frac{-2}{3}$.

T – 1 min
S – Rational numbers

(a) 2/– 3 (b) 2/3

(c) 3/– 2 (d) none of these

Ans.

3. $\frac{114}{133}$ in standard form

T – 1 min
S – Rational numbers

(a) 2 / 3 (b) 3 / 7

(c) 4/7 (d) 6/7

Ans.

4. Which of the following is an irreducible fraction?

T – 1 min
S – Rational numbers

(a) $\frac{24}{93}$ (b) $\frac{14}{35}$

(c) $\frac{11}{27}$ (d) None of these

Ans.

5. Express $(3)^{-1}$ as a rational number

(a) $\frac{1}{3}$ (b) $\frac{3}{1}$

(c) $\frac{1}{2}$ (d) $\frac{1}{9}$

T – 1 min
S – Rational numbers

Ans.

6. Express $\frac{-3}{8}$ as a rational number with denominator 32.

(a) $\frac{-3}{32}$ (b) $\frac{9}{32}$

(c) $\frac{12}{32}$ (d) $\frac{-12}{32}$

T – 1 min
S – Rational numbers

Ans.

7. Which of the two rational is greater? $\frac{-2}{5}$ or 0?

(a) $\frac{-2}{5}$ (b) 0

(c) both are equal (d) None of these

T – 1 min
S – Rational numbers

Ans.

8. Decimal representative of $\frac{-2}{9}$ is :

(a) 0.4 (b) –0.4

(c) 0.2 (d) –0.2

T – 1 min
S – Rational numbers

Ans.

9. The $\frac{p}{q}$ form of $\overline{0.585}$ is:

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

(c) $\frac{1}{333}$ (d) $\frac{1}{3333}$

T – 1 min
S – Rational numbers

Ans.

10. Find the angle of a triangle $\angle A = 90°$ and $B = 45°$

(a) 60° (b) 70°

(c) 80° (d) 45°

T – 1 min
S – Practical geometry

Ans.

Whether the following is True or False.

11. Rational number $\frac{1}{a}$ is in the lowest form, but $\frac{a}{1}$ is not in the lowest form.

T – 1 min
S – Rational numbers

Ans.

12. If a rational number $\frac{p}{q}$ is in the standard form, then $\frac{q}{p}$ is also in the standard form.

T – 1 min
S – Rational numbers

Ans.

13. The equivalent rational numbers are equal.

T – 1 min
S – Rational numbers

Ans.

14. Every fraction is a rational number.

T – 1 min
S – Rational numbers

Ans.

15. Only negative rational number is less than 1.

T – 1 min
S – Rational numbers

Ans.

16. If $\frac{P}{q}$ is a rational number and m is a non-zero integer then $\frac{P}{q} =$ _____ .

T – 1 min
S – Rational numbers

Ans.

17. $\frac{1}{0}$ is not a rational number.

T – 1 min
S – Rational numbers

Ans.

18. If one of the two rational numbers is non-terminating.

T – 1 min
S – Rational numbers

Ans.

19. There are unlimited number of rational numbers between two rational number.

T – 1 min
S – Rational numbers

Ans.

20. To draw construct a triangle we need only two sides.

T – 1 min
S – Practical geometry

Ans.

Fill in the blanks

21. $\frac{2}{3} = \frac{\quad}{135}$

T – 1 min
S – Rational numbers

Ans.

22. $\frac{\quad}{4} = \frac{90}{120}$

T – 1 min
S – Rational numbers

Ans.

23. $\frac{3}{5} = \frac{\quad}{10} = \frac{9}{\quad} = \frac{15}{\quad}$

T – 1 min
S – Rational numbers

Ans.

24. $\frac{-4}{9} = \frac{\quad}{18} = \frac{12}{\quad} = \frac{16}{\quad}$

T – 1 min
S – Rational numbers

Ans.

25. $\frac{-2}{3} = \frac{\quad}{18} = \frac{14}{\quad} = \frac{18}{\quad}$

T – 1 min
S – Rational numbers

Ans.

26. Reciprocal of $\frac{3}{5} =$ _____ .

T – 1 min
S – Rational numbers

Ans.

27. $5 \times$ Reciprocal of $5 =$ _____ .

T – 1 min
S – Rational numbers

Ans.

28. $7 \times$ _____ $= 1$

T – 1 min
S – Rational numbers

Ans.

29. $2\frac{3}{8} \times$ _____ $= 1$

T – 1 min
S – Rational numbers

Ans.

30. Every rational number can be expressed in a _____ form.

T – 1 min
S – Rational numbers

Ans.

Simple question

31. What should be added to $\frac{-7}{9}$ to obtain 3?

T – 1 min
S – Rational numbers

Ans.

32. $\frac{-36}{8} \times \frac{-16}{9} =$

T – 1 min
S – Rational numbers

Ans.

33. $\left(\frac{6}{55} \times \frac{-22}{9}\right) - \left(\frac{26}{125} \times \frac{-10}{39}\right)$

T – 1 min
S – Rational numbers

Ans.

34. $\frac{-65}{14} \div \frac{13}{-7}$

T	– 1 min
S	– Rational numbers

Ans.

35. Draw a line *l* and draw another line parallel to given line $\bar{l}$.

T	– 1 min
S	– Practical geometry

Ans.

Construct a triangle

36. $AB = 4\text{cm}$ $BC = 5\text{ cm}$ $CA = 3\text{ cm}$

T	– 5 min
S	– Practical geometry

Ans.

37. $PQ = 5\text{ cm}$ $RP = 8\text{ cm}$ $RS = 9\text{ cm}$

Ans.

38. $KL = 3.6\text{ cm}$ $LM = 8.6\text{ cm}$ $MN = 5.2\text{ cm}$

Ans.

39. $AB = 4$ cm $\quad BC = 6$ cm $\quad \angle B = 50°$

Ans.

40. $PQ = 6$ cm $\quad QR = 8$ cm and $\angle Q = 70°$

Ans.

41. $\frac{-1}{3} = \frac{7}{x}$

T – 1 min
S – Rational numbers

Ans.

42. $\frac{-7}{3} = \frac{x}{6}$

T – 1 min
S – Rational numbers

Ans.

43. $\frac{13}{6} = \frac{-65}{x}$

T – 1 min
S – Rational numbers

Ans.

44. $\frac{2}{x} = \frac{1}{3}$

T – 1 min
S – Rational numbers

Ans.

45. $\frac{1}{x} = \frac{1}{2}$

T – 1 min
S – Rational numbers

Ans.

Express the following rational numbers in the standard form.

46. $\frac{14}{49}$

T – 1 min
S – Rational numbers

Ans.

47. $\frac{-16}{56}$

T – 1 min
S – Rational numbers

Ans.

48. Are the rational numbers $\frac{-3}{5}$ and $\frac{15}{-25}$ equal?

T – 1 min
S – Rational numbers

Ans.

Questions 65–66. Express the following as a ratio number.

49. 5

T – 1 min
S – Rational numbers

Ans.

50. -8

T – 1 min
S – Rational numbers

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. Represent $\frac{4}{3}$ and $\frac{-2}{3}$ on the number line.

T – 1 min
S – Rational numbers

Ans.

52. Represent $\frac{12}{5}$ on the number line.

T – 1 min
S – Rational numbers

Ans.

53. Evaluate: $\frac{7}{8}+\frac{5}{-12}+\frac{-11}{18}$.

T – 1 min
S – Rational numbers

Ans.

Simplify:

54. $\frac{-2}{5}+\frac{1}{4}+\frac{4}{75}+\frac{-2}{3}+\frac{-5}{8}$

T – 1 min
S – Rational numbers

Ans.

55. Simplify: $1+\frac{-7}{-9}+\frac{-5}{12}+\frac{3}{-4}+\frac{-2}{3}$

T – 1 min
S – Rational numbers

Ans.

56. Verify: $\left(\frac{-7}{8}+\frac{-5}{72}\right)+\frac{-11}{-18}=\frac{-7}{8}+\left(\frac{-5}{72}+\frac{-11}{-18}\right)$

T – 1 min
S – Rational numbers

Ans.

57. Verify: $\left(\frac{3}{5}+\frac{-4}{15}\right)+\frac{7}{-10}=\frac{3}{5}+\left(\frac{-4}{15}+\frac{7}{-10}\right)$

T – 1 min
S – Rational numbers

Ans.

58. Verify: $\left(\frac{-1}{4}+\frac{5}{12}\right)+\frac{-3}{8}=\frac{-1}{4}+\left(\frac{5}{12}+\frac{-3}{8}\right)$

T – 1 min
S – Rational numbers

Ans.

Questions 59–60. Find the standard form of the following.

59. $\frac{-18}{45}$

T – 1 min
S – Rational numbers

Ans.

60. $-\frac{12}{18}$

T – 1 min
S – Rational numbers

Ans.

61. Which of the two rational number $\frac{-4}{9}$ and $\frac{5}{-12}$ is greater?

T – 1 min
S – Rational numbers

Ans.

62. Find 3 rational numbers between $\frac{2}{3}$ and $\frac{4}{5}$

T – 1 min
S – Rational numbers

Ans.

Questions 63–64. Write 3 rational numbers in each of the following:

63. $\frac{-2}{3}, \frac{2}{-3}, \frac{4}{-6}, \frac{6}{-9}$ ____, ____, ____ .

T – 1 min
S – Rational numbers

Ans.

64. $\frac{1}{1}, \frac{-2}{8}, \frac{-3}{12}$ _____, _____, _____ .

T – 1 min
S – Rational numbers

Ans.

Questions 65–66. Find the standard form of the following.

65. $\frac{7}{9} - \frac{2}{5}$

T – 1 min
S – Rational numbers

Ans.

66. $2\frac{1}{5} - \left(\frac{-1}{3}\right)$

T – 2 min
S – Rational numbers

Ans.

67. Find the twenty rational numbers between $\frac{1}{4}$ and $\frac{1}{2}$.

T – 2 min
S – Rational numbers

Ans.

68. Find the nine rational numbers between $\frac{2}{5}$ and $\frac{1}{2}$.

T – 2 min
S – Rational numbers

Ans.

69. Find a rational number between 3 and 4.

T – 2 min
S – Rational numbers

Ans.

70. Find six rational numbers between $\frac{-3}{11}$ and $\frac{8}{11}$.

T – 2 min
S – Rational numbers

Ans.

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

T – 2 min
S – Rational numbers

Ans.

72. Write $0.\overline{745}$ in form $\frac{p}{q}$ without solving it.

T – 2 min
S – Rational numbers

Ans.

73. Construct ΔABC, right angled at B, given that $AC = 5$ cm and $BC = 4$ cm.

T	– 2 min
S	– Practical geometry

Ans.

74. Find the value of $\frac{6}{5} \times \frac{3}{9}$

T	– 2 min
S	– Rational numbers

Ans.

75. $-9 \times \frac{4}{6}$

T	– 2 min
S	– Rational numbers

Ans.

76. What will be the reciprocal of $\frac{-7}{12}$

T	– 2 min
S	– Rational numbers

Ans.

77. Construct a ΔPQR in which $PR = 5$ cm, $PQ = 3$ cm and the included angle $P = 70°$.

T – 2 min
S – Practical geometry

Ans.

78. The sum of two rational numbers is $\frac{-7}{16}$. One of the number is $\frac{3}{-8}$. Find the other.

T – 2 min
S – Rational numbers

Ans.

Simplify and express the result as rational number in standard form.

79. $\left(\frac{3}{5}+\frac{10}{7}\right)-\left(\frac{-4}{9}+\frac{3}{5}\right)$

T – 2 min
S – Rational numbers

Ans.

80. $\left(\frac{8}{9}+\frac{-24}{15}\right)+\left(\frac{5}{8}+\frac{-24}{36}\right)-\left(\frac{-7}{11}+\frac{22}{28}\right)$

T – 2 min
S – Rational numbers

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. The product of two natural numbers is –3. If one of the number is $\frac{-2}{7}$, find the other.

T	– 1 min
S	– Rational numbers

Ans.

82. By what rational number should we multiply $\frac{-3}{4}$ to get $\frac{7}{6}$?

T	– 1 min
S	– Rational numbers

Ans.

83. A milkman has 40 liters of milk in a can. He sells, $28\frac{7}{6}$ litres of it. How much milk is left in the can?

T	– 1 min
S	– Rational numbers

Ans.

84. The product of two rational numbers is $\frac{25}{116}$. If one of the rational number is $\frac{9}{14}$. Find the other.

T	– 2 min
S	– Rational numbers

Ans.

85. Divide the product of $\frac{-3}{4}$ and $\frac{9}{16}$ by their sum.

T – 2 min
S – Rational numbers

Ans.

86. Divide the sum of $\frac{-4}{11}$ and $\frac{7}{22}$ by $\left(\frac{-4}{11}-\frac{7}{22}\right)$.

T – 2 min
S – Rational numbers

Ans.

87. What should be added to $\frac{4}{9}$ to get $\frac{-7}{8}$?

T – 2 min
S – Rational numbers

Ans.

88. $\left(\frac{-16}{35} \div \frac{-5}{14}\right) \times \left(\frac{-65}{14} \div \frac{13}{-7}\right)$

T – 2 min
S – Rational numbers

Ans.

89. Find five rational numbers between $\frac{-5}{7}$ and $\frac{-3}{8}$

T – 2 min
S – Rational numbers

Ans.

Questions 90–91. Draw the number line and represent the following rational numbers unit.

90. $\frac{3}{4}$

T – 2 min
S – Rational numbers

Ans.

91. $\frac{-5}{8}$

T – 2 min
S – Rational numbers

Ans.

92. Verify that $a \div (b + c) = (a \div b) + (a \div c)$ for each of the value $a = 12$, $b = -4$, $c = 2$

T – 2 min
S – Rational numbers

Ans.

93. Anil walks $\frac{3}{5}$ km from a point A towards east and then from there $2\frac{5}{7}$ km towards west. Where will he now from A.

T – 3 min
S – Rational numbers

Ans.

Solve the following

94. $\frac{3}{8}+\frac{4}{3}+\frac{5}{6}$

T – 3 min
S – Rational numbers

Ans.

95. Find the additive inverse of $\frac{-9}{11}$.

T – 3 min
S – Rational numbers

Ans.

96. Construct ΔABC such that $AB = 3.5$ cm, $bC = 7$ cm AND $AC = 7.2$ cm measure $\angle B$

T – 3 min
S – Practical geometry

Ans.

97. Consturct ΔPQR WITH $PQ = 8.2$ cm, $QR = 7$ cm and $\angle Q = 70°$

T – 3 min
S – Practical geometry

Ans.

98. Construct an isosceles right angled triangle ABC wherer m $\angle ACB = 90°$ and $AC = 7$ cm.

T	– 3 min
S	– Practical geometry

Ans.

99. Construct a right triangle having hypotenuse of length 6 cm and whose acute angles measure 30°.

T	– 3 min
S	– Practical geometry

Ans.

100. Construct the PQR where $MCQ = 80$, $QR = 9.2$ cm and PR $= 7.2$ cm

T	– 3 min
S	– Practical geometry

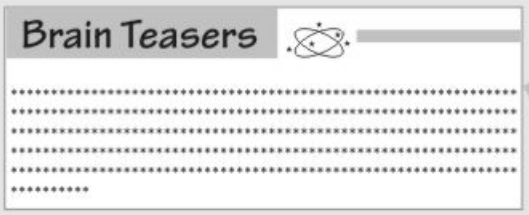
Ans.

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