Grade 08
Unit 04

Maths

Course Outline

Formative 2

- **Geometry**
- **Square and square roots**
- **Data handling**

MAT

(Monthly Achievement Tests)

Short Code: 447309

Test ID: NMM08U040

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 questions 1 to 20 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. $(3^2 + 4^2)^{-1/2}$

(a) 25 (b) 5

(c) $\frac{1}{5}$ (d) $\frac{-1}{5}$

T – 1 min
S – Square root

Ans.

2. Which of the following is the squares of odd number?

(a) 121 (b) 144

(c) 196 (d) 676

T – 1 min
S – Squares

Ans.

3. Which of the options cannot be a perfect square?

(a) 1023 (b) 1024

(c) 1025 (d) 1026

T – 1 min
S – Perfect square

Ans.

4. The number of digits in the square root of 390625 is.

(a) 3 (b) 4

(c) 5 (d) none of these

T – 1 min
S – Square root

Ans.

5. The square of x is an odd number. Than x can be

(a) 2248 (b) 1392

(c) 2223 (d) 28.

T – 1 min
S – Squares

Ans.

6. If $(625)^2 = m$, then $m =$

(a) 390625 (b) 309625

(c) 390265 (d) 309526

T – 1 min
S – Squares

Ans.

7. The value of $1 + 3 + 5 + 7 + \ldots + 39$.

(a) 441 (b) 499

(c) 361 (d) 400

T – 1 min
S – Data handling

Ans.

8. Which of the following is a perfect square?

(a) 1057 (b) 23453

(c) 7928 (d) 1024

T – 1 min
S – Perfect square

Ans.

9. Find the square root of 42.

(a) 1764 (b) 1680

(c) 1763 (d) 1845

T – 1 min
S – Square root

Ans.

10. A line segment joining in mid point of two sides of a triangles is _____ of the third sides.

(a) equal (b) double

(c) half (d) none of these

T – 1 min
S – Geometry

Ans.

True or False

11. There is no square number between 50 and 60.

T – 1 min
S – Square

Ans.

12. The square root of a prime number may be obtained approximately, but never exactly.

T – 1 min
S – Square root

Ans.

13. The product of two perfect square is a perfect square.

T – 1 min
S – Square

Ans.

14. A natural number n is a perfect square if $n = m^2$ for some natural number m.

T – 1 min
S – Square

Ans.

15. The square root of 3 is 1.732.

T – 1 min
S – Square

Ans.

16. The square of 25 is 625.

T – 1 min
S – Square

Ans.

17. A number ending with 2, 3, 7 or 8 is never a perfect square.

T – 1 min
S – Perfect square

Ans.

18. A number ending in an odd number of zeros is never a perfect square.

T – 1 min
S – Perfect square

Ans.

19. The sum of two perfect squares is a perfect square.

T – 1 min
S – Perfect square

Ans.

20. The sum of three perfect square is a perfect square.

T – 1 min
S – Square

Ans.

Fill in the blanks

21. The square of an even number is _____.

T – 1 min
S – Square

Ans.

T – 5 min
S – Square

	Number	*Perfect square*	*Number*	*Square root*
22.	7	_____	100	_____
23.	19	_____	81	_____
24.	31	_____	64	_____
25.	40	_____	49	_____
26.	45	_____	25	_____

27. Identify whether the following number is perfect square:
(a) 4000 (b) 5000 (c) 1080

T – 1 min
S – Prefect cube

Ans.

28. A quadrilateral can be constructed uniquely if the _____ sides and a _____ given draw the following.

T – 1 min
S – Geometry

Ans.

29. The mid value of a class interval is called its _____.

T – 1 min
S – Data handling

Ans.

30. The _____ is a method of representing the given numeral data in the form of sectors of a circle.

T – 1 min
S – Data handling

Ans.

Draw the following :

31. A square *ABCD* with *BC* = 4 cm.

T – 1 min
S – Mensuration

Ans.

32. A rhombus *PQRS* whose diagonals 5.3 cm and 6.8 cm.

T – 1 min
S – Mensuration

Ans.

33. A rectangle *KLMN* with adjacent sides of 6 cm and 3 cm.

T – 1 min
S – Mensuration

Ans.

34. A parallelogram *PQRS* where *PQ* = 6.2 cm and *QR* = 3.2 cm.

T – 1 min
S – Mensuration

Ans.

35. A quadrilateral *ABCD* where $AB = 5$ cm, $BC = 3$ cm, $CD = 4$ cm, $\angle B = 60°$ and $\angle C = 90°$.

T – 1 min
S – Mensuration

Ans.

36. A quadrilateral *PQRS*. $PQ = 4$ cm, $QR = 3$ cm, $QS = 4$ cm, $SP = 2.5$ cm, $PR = 4.5$ cm

T – 1 min
S – Mensuration

Ans.

37. Find the arithmetic mean of first 10 even numbers.

T – 1 min
S – Mensuration

Ans.

38. Find the arithmetic mean of first 10 odd numbers.

T – 1 min
S – Mensuration

Ans.

39. Find the arithmetic mean of first five maldives of 3.

T – 1 min
S – Mensuration

Ans.

40. Find the arithmetic mean of first five maldives of 5.

T – 1 min
S – Mensuration

Ans.

41. Define grouping of Data.

T – 1 min
S – Data handling

Ans.

42. What do you mean by frequency.

T – 1 min
S – Data handling

Ans.

For questions 43-45, find the least number which must be subtracted from the following numbers so as to leave a perfect square.

43. 2361

T – 3 min
S – Square root

Ans.

44. 18265

Ans.

45. 390700

Ans.

46. Find the smallest number that must be added to 4931 to get a perfect square.

T – 1 min
S – Square root

Ans.

Questions 47-48, find the square roots of the following numbers, correct to two places of decimal.

T – 2 min
S – Square root

47. 1.7

Ans.

48. 20

Ans.

49. Find the square root of .008281.

T – 2 min
S – Square root

Ans.

50. Find the square root of .053361.

T – 2 min
S – Square root

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. How many numbers lie between squares of the following numbers?
12 and 13.

T – 1 min
S – Squares

Ans.

52. Find the least square number which is exactly divisible by 6, 9 and 15.

T – 1 min
S – Squares

Ans.

53. Find the least square number which is exactly divisible by 8, 12 and 18.

T – 1 min
S – Squares

Ans.

54. Find the greatest square number which will divide 36, 54 and 90 exactly.

T – 1 min
S – Squares

Ans.

55. Find the least number which must be subtracted from 8000 to make it a perfect square.

T	– 1 min
S	– Squares

Ans.

56. Find the least number which must be subtracted from 4800 to make it a perfect square.

T	– 1 min
S	– Squares

Ans.

57. Find the least number which must be added to 9999 to make it a perfect square.

T	– 1 min
S	– Squares

Ans.

58. Find the least number which must be added to 4000 to make it a perfect square.

T	– 1 min
S	– Squares

Ans.

59. Evaluate: $\sqrt{63} \times \sqrt{175}$.

T	– 1 min
S	– Square root

Ans.

60. If $\sqrt{2} = 1.414, \sqrt{3} = 1.732$, evaluate the $\sqrt{864}$.

T	– 1 min
S	– Square root

Ans.

61. Find the square root of 25.9 correct to one decimal place.

T	– 1 min
S	– Square root

Ans.

62. If $\sqrt{5} = 2.236$ find the value of $\sqrt{0.125}$.

T	– 1 min
S	– Perfect square

Ans.

63. Which of the following can not be a perfect square.
1150, 1155, 1157, 1156

T – 1 min
S – Perfect square

Ans.

64. The number of digits in the square root of 403225.

T – 1 min
S – Square root

Ans.

65. Find the least number which must be subtracted from 4800 to make it a perfect square.

T – 1 min
S – Square root

Ans.

66. Find the least number which must be added to 9999 to make it a perfect square.

T – 2 min
S – Square root

Ans.

67. Find the least number which must be added to 4000 to make it a perfect square.

T – 2 min
S – Square

Ans.

68. Estimate the square root of 2304.

T – 2 min
S – Square

Ans.

69. Estimate the square root of 7225.

T – 2 min
S – Square

Ans.

Questions 70-71, find the square roots of the following numbers, correct to three places of decimal :

70. .00064

T – 2 min
S – Square root

Ans.

71. $\frac{5}{12}$

T – 2 min
S – Sqaure root

Ans.

The ages of 50 marks in a factor and as follows

Age in year	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
No. of names	2	4	5	10	15	8	5	1

72. What is an class size?

T – 10 min
S – Data handling

Ans.

73. What is an lower limit of 40-45?

Ans.

74. What is an upper limit of 55-60?

Ans.

75. What is an class more of class 30-35?

Ans.

76. What is an frequency of class interval 35-40 ?

Ans.

77. Construct a triangle ABC, $AB = 3\text{cm}, BC = 4$ cm, $AC = 5$ cm.

T – 2 min
S – Geometry

Ans.

78. Construct a rectangle of 4 cm length and 2 cm breadth.

T – 2 min
S – Geometry

Ans.

79. Construct a quadrilateral $AB = 3$ cm, $BC = 4$ cm, $CD = 5$ cm and $AD = 5$ cm.

T – 2 min
S – Geometry

Ans.

80. Construct a quadrilateral $PQ = 2.7$ cm, $QR = 3.2$ cm, $RS = 4.2$ cm and $PS = 5.2\text{cm}$.

T – 2 min
S – Geometry

Ans.

20

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 cost of levelling a square lawn at Rs 3 per m2 is Rs 3072. Find the cost of fencing it at Rs 6 per metre.

T – 2 min
S – Mensuration

Ans.

82. The area of a square garden is 23.04 m. Find the length of one side of the garden.

T – 2 min
S – Mensuration

Ans.

83. The area of a square field is 5184 m^2. A rectangular field, whose length is twice its breadth has its perimeter equal to the perimeter of the square field. Find the area of the rectangular field.

T – 2 min
S – Mensuration

In Questions 84-85, for each of the following numbers, find the smallest number with which it should be multiplied so as to get a perfect square. Also find the square root of the square numbers so obtained:

84. 1458

T – 4 min
S – Square root

Ans.

85. 2028

Ans.

In questions 86–87, for each of the following numbers, find the smallest number by which it should be divided so as to get a perfect square. Also find the square root of the square number so obtained.

86. 2800

T – 4 min
S – Square

Ans.

87. 45056

Ans.

88. The student of Class VIII of a school donated Rs. 2401 for prime minister's national relief fund. Each student donated as many rupees as the number of students in the class. Find the number of students in the class.

T – 2 min
S – Square

Ans.

In questions 89-90, find the squares of the following numbers using the column method:

89. 25

T – 2 min
S – Square

Ans.

90. 71

T – 2 min
S – Square

Ans.

In questions 91-94, Construct the quadrilaterals ABCD.

91. $AB = 3$ cm, $BC = 4$ cm, $CD = 2$ cm, $DA = 4$ cm, $AC = 5$ cm, $BD = 7$cm.

T – 2 min
S – Geometry

Ans.

92. $AB = 3.5$ cm, $BC = 6.5$ cm, $\angle A = 75°$, $\angle B = 105°$, $\angle C = 120°$.

T – 2 min
S – Geometry

Ans.

93. $AB = 4$ cm, $BC = 5$ cm, $CD = 6.5$ cm, $\angle B = 100°$ and $\angle C = 15°$.

T – 2 min
S – Geometry

Ans.

94. $BC = 6$ cm, $\angle B = 110°$, $\angle C = 70°$, $CD = 7$ cm and $AB = 5$ cm.

T – 2 min
S – Geometry

Ans.

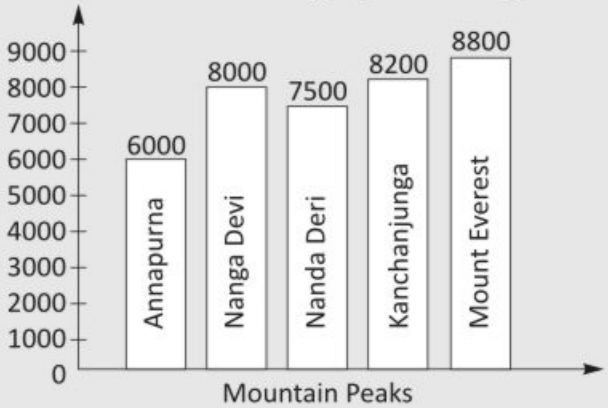
95. Define histogram.

T – 2 min
S – Data handling

Ans.

96. Given below is a bar graph showing the heights of fire mountain peaks.

T – 2 min
S – Data handling



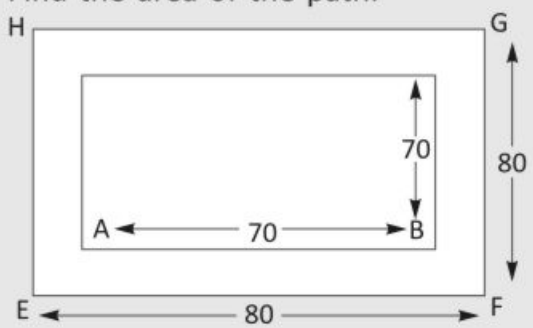
Read the bar graph carefully and answer the following questions :

1. Which is the highest peak and what is its height?
2. What is the ratio of the heights of highest peak and smallest peak.
3. Arrange the heights of the given peaks in descending order.

Ans.

97. A path 5 cm wide runs outside of a square park, where each side is 70 cm. Find the area of the path.

T – 3 min
S – Area of square



Ans.

98. A rectangular park of dimensions 600 m by 450 has two cross roads each 3.5 m wide, running mid-way with it, parallel to its sides. Find the cost of constructing the roads at the rate of Rs. 50 per 100 m^2

T – 3 min
S – Area of square

Ans.

Questions 99–100. Look at the below pie chart and answer the following Questions.

99. The percentage of a family (age wise) is shown in the chart. Find the percentage of the members who are above 60 years.

T – 3 min
S – Data handling

Ans.

100. Find the percentage of members between 30 and 50 years.

T – 3 min
S – Data handling

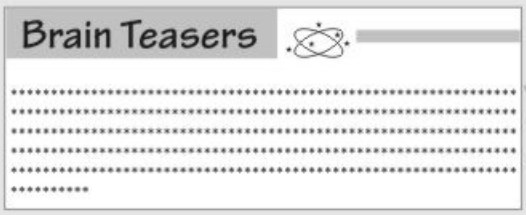
Ans.

Tools at a glance

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

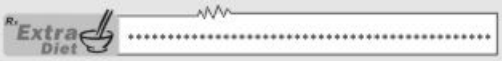
Let's Chat, the feature with suggestive topics for discussion so as to improve your capacity to debate on various topics.

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 (Fair)
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