Grade 08
Unit 08

Maths

Course Outline

Formative 3

- **Algebraic expressions**
- **Visualising solid shapes**
- **Direct and inverse property**

MAT

(Monthly Achievement Tests)

Short Code: 447309

Test ID: NMM08U080

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. Cylinder is _____.

(a) 3 dimensional (b) 2 dimensional

(c) None of these (d) Both

T – 1 min
S –Direct & Inverse Prop.

Ans.

2. A can do a work in 15 days and B in 20 days. If they work on it together for 4 days then the fraction of the work that is left, is

(a) $\frac{1}{4}$ (b) $\frac{1}{10}$

(c) $\frac{7}{15}$ (d) $\frac{8}{15}$

T – 1 min
S – Direct & Inverse Prop.

Ans.

3. 18 men can reap a field in 35 days, for reaping the same field in 15 days, the number of men required are

(a) 40 (b) 42

(c) 44 (d) 46

T – 1 min
S – Direct & Inverse Prop.

Ans.

4. What number must be added to each of the numbers 6, 15, 20 and 43 to make four numbers proportional?

(a) 3

(b) 4

(c) 5

(d) 6

T – 1 min
S – Direct & Inverse Prop.

Ans.

5. Reena types 1080 words in an hour, then her gross words a minute rate is

(a) 14 (b) 16

(c) 18 (d) 20

T – 1 min
S – Direct & Inverse Prop.

Ans.

6. If 8 oranges cost Rs. 10.40 how many oranges can be bought for Rs. 33.80?

(a) 23 (b) 18

(c) 24 (d) 26

T – 1 min
S – Direct & Inverse Prop.

Ans.

7. A worker is paid Rs. 200 for 8 days work. If he works for 20 days, the amount received by him, is (in Rs.)

(a) 500 (b) 450

(c) 400 (d) 350

T – 1 min
S – Direct & Inverse Prop.

Ans.

8. The mean proportional to 12 and 18 is

(a) 6 (b) $6\sqrt{6}$

(c) 12 (d) $12\sqrt{3}$

T – 1 min
S – Direct & Inverse Prop.

Ans.

9. If $a : b = 5 : 7$, then $3a + 5b : (5a - 2b) = ?$

(a) 40 : 7 (b) 50 : 11

(c) 35 : 9 (d) 17 : 5

T – 1 min
S – Direct & Inverse Prop.

Ans.

10. Two numbers are such that the ratio between them is 3 : 5. If each is increased by 10, the ratio becomes 5 : 7. The original numbers are

(a) 10, 15 (b) 15, 25

(c) 25, 35 (d) 20, 30

T – 1 min
S – Direct & Inverse Prop.

Ans.

True or False

11. $(a + b)^2 = (a + b)(a - b)$.

T – 1 min
S – Algebraic expressions

Ans.

12. $1000 \text{ mm}^3 = 1 \text{ cm}^3$.

T – 1 min
S – Direct & Inverse Prop.

Ans.

13. Bodies that have a definite shape are called solids.

T – 1 min
S – Visualising solid shapes

Ans.

14. The space occupied by a solid body is called its volume.

T – 1 min
S – Visualising solid shapes

Ans.

15. Top view of a match box is square.

T – 1 min
S – Visualising solid shapes

Ans.

16. Top view of a car is spnerical.

T – 1 min
S – Visualising solid shapes

Ans.

17. Cylinder is a polyhedron

T – 1 min
S – Visualising solid shapes

Ans.

18. Pyramid and prism have some polyhedral.

T – 1 min
S – Visualising solid shapes

Ans.

19. A map is different from picture.

T – 1 min
S – Visualising solid shapes

Ans.

20. 3 D objects have different views from different points.

T – 1 min
S – Visualising solid shapes

Ans.

Fill in the blanks

21. 1000 cm^3 = _____.

T – 1 min
S – Direct & Inverse Prop.

Ans.

22. Number of edges of a triangular prism is _____.

(a) 10 (b) 8

(c) 6 (d) 12

T – 1 min
S – Visualising Solid Shapes

Ans.

23. Cylinder is a _____ figure.

T – 1 min
S – Visualising Solid Shapes

Ans.

24. The square of a proper fraction is _____ than the given fraction.

T – 1 min
S – Visualising Solid Shapes

Ans.

25. $(a-b)^2 =$ _____.

T – 1 min
S – Algebraic expressions

Ans.

26. $x^2 + (a+b)\,x + ab =$ _____.

T – 1 min
S – Algebraic expressions

Ans.

27. A cuboid is also known as a rectangular_____.

T – 1 min
S – Visualising Solid Shapes

Ans.

28. A triangular pyramid is called a_____.

T – 1 min
S – Visualising Solid Shapes

Ans.

29. _____ are used to depict in different points.

T – 1 min
S – Visualising Solid Shapes

Ans.

30. Cylinder has a _____ and a _____ surface.

T – 1 min
S – Visualising Solid Shapes

Ans.

Draw the 3D picture of following

T – 6 min
S – Direct & Inverse Prop.

31. Cylinder

Ans.

32. Core

Ans.

33. Sphere

Ans.

34. Match box

Ans.

35. Pyramid

Ans.

36. Prism

Ans.

For question no. 37-39, If x and y are in direct proportion Fill in the blanks

x	4	p	q	a
y	5	7	q	6

T – 3 min
S – Direct & Inverse Prop.

37. Find p

Ans.

38. Find q

Ans.

39. Find a

Ans.

40. If 5 men or 7 women can earn Rs. 875 per day, how much would 10 men and 5 women earn per day?

T	– 1 min
S	– Direct & Inverse Prop.

Ans.

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

T	– 1 min
S	– Direct & Inverse Prop.

Ans.

For questions 42-44, use suitable identity to find the following products:

42. $(x + 4)(x + 5)$

T	– 3 min
S	– Algebraic expressions

Ans.

43. $(y-8)(y+12)$

Ans.

44. $(p+6)(p-4)$

Ans.

For questions 45-46, evaluate the following products without directly multiplying the given numbers:

T – 2 min
S – Algebraic identity

45. 103×106

Ans.

46. 95×96

Ans.

For questions 47-48, expand each of the following using the identifier:

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ac.$

T – 2 min
S – Algebraic identity

47. $(x+2y+4z)^2$

Ans.

48. $(6x+\frac{1}{2}y+4z)^2$

Ans.

For questions 49-50, expand the following using the identifier :

$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

T – 2 min
S – Algebraic identity

49. $(x+2y)^3$

Ans.

50. $(2x-y^2)^3$

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.

Simplify the following algebraic expressions:

T – 5 min
S – Algebraic expression

51. $12b - 7b - 3b$

Ans.

52. $-x^2 + 4x^2 - 8x^2 + 11x^2$

Ans.

53. $2a - (b - a) - b - (a - b)$

Ans.

54. $26 - 79 + 8a - 5b + 3c - c$

Ans.

55. $10m^2 - 9m + 7m - 3m^2 - 5m - 8$

Ans.

Questions 56-60, find the sum of each of the following:

T – 5 min
S – Algebraic expression

56. a + b + c, b + c – a, c + a – b.

Ans.

57. –abc, 13abc, 5abc

Ans.

58. 3x + 4y – 153, 6x + 7y, 12y –72 – 9x

Ans.

59. 15a + 116 – 13c – 17, 18 + 2c – 7b – 39

Ans.

60. x – 8xy, 3xy – y, y + 1

Ans.

61. $(z-4)(z-1)$

T – 1 min
S – Algebraic identity

Ans.

62. Add the monomials 2xy, 8xy, –5xy, xy.

T – 1 min
S – Algebraic expression

Ans.

63. Write the coefficient of y in 7 - x + y.

T – 1 min
S – Algebraic expression

Ans.

64. School A has h pupils. School B has 25 fewer pupils. There are _____ pupils in school B.

T – 1 min
S – Algebraic expression

Ans.

65. Punit has 1280 cards. Sunita has c cards fewer than Punit. Sunita has _____ cards.

T – 1 min
S – Algebraic expression

Ans.

66. David has 30 stamps. Sachin has 3 times as many stamps as David. Sachin has _____ stamps.

T	– 2 min
S	– Algebraic expression

Ans.

67. Evaluate the following product:

$$\left(x+\frac{1}{5}\right)(x+5)$$

T	– 2 min
S	– Algebraic identity

Ans.

68. The scale of a map is given as 1.5×10^6 the capitals of two countries are 8 cm apart on the map. Find the actural distance between them.

T	– 2 min
S	– Direct & Inverse Prop.

Ans.

69. If 30 workers can build a bridge in 200 days, how many workers will be required to do the same job in 150 days.

T	– 2 min
S	– Direct & Inverse Prop.

Ans.

70. What number must be added to each of the number 6, 15, 20 and 43 to make four numbers proportional?

T	– 2 min
S	– Direct & Inverse Prop.

Ans.

Match the following:

T	– 2 min
S	– Direct & Inverse Prop.

71. 

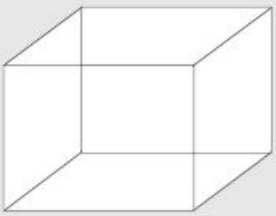
square

72. 

circle

73. 

cylinder

74. 

Ans.

75. Two numbers are in the ratio 5 : 8. If the sum of the numbers is 182, find the numbers?

T	– 2 min
S	– Direct & Inverse Prop.

Ans.

76. oxen or 8 cows can graze a field in 28 days. How long would 9 oxen and 2 cows take to graze the same field?

T	– 2 min
S	– Direct & Inverse Prop.

Ans.

77. A alone can finish a piece of work in 12 days and *B* alone can do it in 15 days. If both of them work at it together, how much time will they take to finish it?

T	– 2 min
S	– Direct & Inverse Prop.

Ans.

78. There are 100 students in a hostel. Food provision for them is for 20 days. How long will these provisions last, if 25 more students join the group

Number of student	100	125
Number of days	20	y

T – 2 min
S – Direct & Inverse Prop.

Ans.

79. The ratio of two sides of a parallelogram is 4 : 3. If is perimeter is 56 cm. Find the length of its sides.

T – 2 min
S – Direct & Inverse Prop.

Ans.

80. If 35 men reap a field in 8 days, in how many days can 20 men reap the same field?

T – 2 min
S – Direct & Inverse Prop.

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**

Questions 81-83, Find the product of the following:

81. $(a+1)(a-1)(a^2+1)$

T – 6 min
S – Algebraic identities

Ans.

82. $(2x-3y)(2x+3y)(4x^2+9y^2)$

Ans.

83. $(2m^2-3n^2)(3m^2+2n^2) =$

Ans.

84. Solve $\frac{6x+7}{3x+2} = \frac{4x+5}{2x+3}$

T – 2 min
S – Linear equation

Ans.

85. If $x+\frac{1}{x}=5$, find the value of $x^2+\frac{1}{x^2}$.

T – 2 min
S – Algebraic identities

Ans.

86. Find the value of the expression $9x^2+24x+16$ when $x=2$.

T – 2 min
S – Algebraic expression

Ans.

Questions 87-88, divide the following expressions.

87. $24xy^2z^3$ by $6yz^2$

T – 2 min
S – Polynomials

Ans.

88. $63a^2b^4c^6 \div 7a^2b^2c^3$

Ans.

89. Simplify:

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

(b) $(1.5x-4y)(1.5x+4y+3)-4.5x+12y$

T – 2 min
S – Algebraic identities

Ans.

90. Use a suitable identity to get each of the following products.

(a) $\left(\frac{x}{2}+\frac{3y}{4}\right)\left(\frac{x}{2}+\frac{3y}{4}\right)$

(b) $(7a-9b)(7a-9b)$

T – 2 min
S – Algebraic identities

Ans.

91. Show that :

(a) $(3x+7)^2 - 84x = (3x-7)^2$

(b) $(a-b)(a+b) + (b-c)(b+c) + (c-a)(c+a) = 0$

T – 2 min
S – Algebraic identities

Ans.

92. Using $a^2 - b^2 = (a+b)(a-b)$, find

(a) $(1.01)^2 - (0.98)^2$

T – 2 min
S – Algebraic identities

Ans.

93. Simplify :

$$\frac{(x^2-y^2)^3+(y^2-z^2)^3+(z^2-x^2)^3}{(x-y)^3+(y-z)^3+(z-x)^3}$$

T – 2 min
S – Algebraic identities

Ans.

94. What number must be added to each of the number 6, 15, 20 and 43 to make four numbers proportional?

T – 3 min
S – Direct & Inverse Prop.

Ans.

95. If $A:B=3:4$, $B:C=7:9$ then $A:B:C$ is equal to

T – 3 min
S – Direct & Inverse Prop.

Ans.

96. A picnic is being planed in a school for class IX. Girls are 60% of the total number and are 18 in number. Calculate the ratio of number of girls to the number of boys in the class.

T	– 3 min
S	– Direct & Inverse Prop.

Ans.

97. If $A:B=3:4, B:C=7:9$ then $A:B:C$ is equal to

T	– 3 min
S	– Direct & Inverse Prop.

Ans.

98. A and B can do a piece of work in 12 days. B and C can do it in 15 days. C and A can do the same work in 20 days. In how many days will A, B, C finish it, working together? In how many days will each one of them finish it, working alone?

T	– 3 min
S	– Direct & Inverse Prop.

Ans.

99. The length of a rectangle exceeds its breadth by 9 cm. If the length and breadth are each increased by 3 cm, the area of the new rectangle will be 84 cm^2 more than that of the given rectangle. Find the length and breadth of the given rectangle. Check your solution.

T	– 3 min
S	– Direct & Inverse Prop.

Ans.

100. 6 typists working 5 hours a day can type the manuscript of a book in 16 days. How many days will 4 typists take to do the same job, each working 6 hours a day?

T	– 3 min
S	– Direct & Inverse Prop.

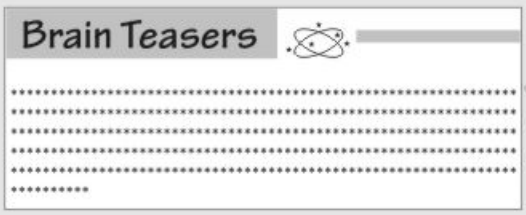
Ans.

Tools at a glance

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

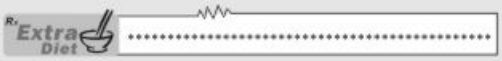
Let's Chat, the feature with suggestive topics for discussion so as to improve your capacity to debate on various topics.

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