

Grade 06 Unit 10

Maths

Course Outline

- Algebra
- Ratio and proportion

MAT

(Monthly Achievement Tests)

Short Code: 447307

Test ID: NMM06U0100



Guide Lines

1. Each set consists of:

50 | Warm-up/Foundation Questions

30 | Regular Questions

20 | Thinking Ability Questions

- 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.
- 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.,**
- 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.
- Remember that this is only a guideline not the finally worked out result. You can further improve your performance by increase your practice.
- For your convenience please follow following essential examiner's advices:
 - Answer all the questions
 - Read all the Options carefully
 - Understand and use correct scientific language in your responses.

We from  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 your knowledge through visualization 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.

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 each question 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. $\frac{20}{400}$ can be written as

(a) 1:20

(b) 2:40

(c) 10:40

(d) none of these

T – 1 min
S – Ratio and proportion

Ans.

2. $\frac{14}{15} = \frac{\quad}{5}$

(a) 7

(b) 5

(c) 2

(d) 9

T – 1 min
S – Ratio and proportion

Ans.

3. Boon's height is 1.53 m, 6 cm shorter than Meng. What is the average height of Boon and Meng?

(a) 1.56 m

(b) 1.59 m

(c) 3.06

(d) 3.12

T – 1 min
S – Ratio and proportion

Ans.

4. Julie has 16 brooches fewer than Vicki who has 44 brooches. How many brooches must Vicki give to Julie so that both of them have the same number of brooches?

(a) 4

(b) 8

(c) 28

(d) 30

T – 1 min
S – Ratio and proportion

Ans.

5. Each eraser costs 20 cents.
How many erasers can Andy buy with Rs. x ?

- (a) $5x$ (b) $\frac{5x}{3}$
(c) $\frac{x}{0.2}$ (d) $\frac{x}{20}$

T – 1 min
S – Algebra

Ans.

6. The pie chart shows the proportion of students talking the various languages in a college. There are altogether 1600 students in the college. How many foreign language students are there?

- (a) 800
(b) 600
(c) 400
(d) 200



T – 1 min
S – Ratio and proportion

Ans.

7. Malingam was 22 years old m years ago. His age now is _____ years.

- (a) $22m$ (b) $(22 + m)$
(c) $(22 - m)$ (d) $(m - 22)$

T – 1 min
S – Algebra

Ans.

8. Adnan has Rs m . Beng has Rs 8 more than Adnan. Devi has Rs 5 less than the total amount Adnan and Beng have. The 3 of them have _____ altogether.

- (a) Rs $(m - 2)$ (b) Rs $(2m - 2)$
(c) Rs $(3m + 11)$ (d) Rs $(4m + 11)$

T – 1 min
S – Algebra

Ans.

9. The ratio of brown rice to white rice in a 5 kg packet of mixed rice is 7 : 13. The amount of brown rice in the 5 kg packet of mixed rice is _____.

- (a) 0.25 kg (b) 2.25 kg
(c) 1.75 kg (d) 3.25 kg

T – 1 min
S – Ratio and proportion

Ans.

10. Half a dozen packets of potato chips cost Rs 5.40. With Rs 9, Sandy can buy _____ packets of the potato chips.

(a) 7 (b) 8
(c) 9 (d) 10

T – 1 min
S – Algebra

Ans.

11. Find the value of $\frac{3k + 27}{72}$ if $k = 6$.

(a) $\frac{3}{8}$ (b) $\frac{1}{4}$
(c) $\frac{5}{12}$ (d) $\frac{5}{8}$

T – 1 min
S – Algebra

Ans.

12. Jamilah is 2 years 3 months older than Ramesh. Jamilah is 13 years old. How did will Ramesh be in 3 year's time?

(a) 10 years
(b) 10 years 9 months
(c) 13 years 3 months
(d) 13 years 9 months

T – 1 min
S – Algebra

Ans.

13. The enrolment of pupils in a school is 55% more than 10 years ago. Its pupil enrolment is 2232 now. What was its pupil enrolment 10 years ago?

(a) 3460 (b) 2272
(c) 1440 (d) 1228

T – 1 min
S – Algebra

Ans.

14. Aini has Rs. 22.40 and Bala has Rs. 3.20. What is the ratio, in its simplest form, of Aini's money to Bala's money?

(a) 5 : 1 (b) 6 : 1
(c) 7 : 1 (d) 224 : 32

T – 1 min
S – Ratio and proportion

Ans.

True or False

15. $12x - 5x = 7x$

T – 1 min
S – Algebra

Ans.

16. The comparison is known as ratio.

T – 1 min
S – Ratio and proportion

Ans.

17. We denote ratio using symbol ::

T – 1 min
S – Ratio and proportion

Ans.

18. Two quantities can be compared only if they are in the same unit.

T – 1 min
S – Ratio and proportion

Ans.

19. We can get equivalent ratios by dividing the only number.

T – 1 min
S – Ratio and proportion

Ans.

20. If two ratios are equal, we can say that they are in proportion.

T – 1 min
S – Ratio and proportion

Ans.

21. Letters used to represent number are called literals.

T – 1 min
S – Algebra

Ans.

22. The mean proportional between a and b is $2ab$.

T – 1 min
S – Ratio and proportion

Ans.

23. If the cost of one dozen pen is Rs.60, then the cost of one is Rs.5.

T – 1 min
S – Ratio and proportion

Ans.

24. The same ratio may occur in different situations.

T – 1 min
S – Ratio and proportion

Ans.

25. $2x + 4x = 9x$

T – 1 min
S – Ratio and proportion

Ans.

Solve the following:

26. $18 = x + 9$

T – 1 min
S – Algebra

Ans.

27. $25 = x - 5$

T – 1 min
S – Algebra

Ans.

28. $4x = 20 - 2x$

T – 1 min
S – Algebra

Ans.

29. $.6x = 5x + 2$

T – 1 min
S – Algebra

Ans.

30. $5 = \frac{x}{2} - 3$

T – 1 min
S – Algebra

Ans.

31. Divide 90 by 2:3

T – 1 min
S – Ratio and proportion

Ans.

Find the ratio of the following:

32. 45 minutes to 1.30 hours

T – 1 min
S – Ratio and proportion

Ans.

33. 20 cm to 2.4 cm

T – 1 min
S – Ratio and proportion

Ans.

34. A dealer purchased 125 colour TV sets. If the cost of each set is Rs 9820, determine the cost of all the sets together.

T – 1 min
S – Ratio and proportion

Ans.

35. The cost price of 24 radio sets is Rs 18720. Find the cost price of one radio?

T – 1 min
S – Ratio and proportion

Ans.

36. Find the value of $12m$ if $m = 4$

T – 1 min
S – Algebra

Ans.

37. Simplify $28p - 42p + 18p - 2p + 9p$

T – 1 min
S – Algebra

Ans.

38. Aditi is 5 year 8 month younger than Smriti. Smriti is 20 year old. What is the age of Aditi after $1\frac{1}{2}$ years?

T – 1 min
S – Algebra

Ans.

39. A number, N , is smaller than 50. N is a multiple of 6 as well as a multiple of 9. What is the smallest possible number of N ?

T	– 1 min
S	– Algebra

Ans.

40. 2 dozens of oranges cost Rs. 60. Find the cost of 120 similar oranges.

T	– 1 min
S	– Ratio and proportion

Ans.

41. The ratio of two quantities a and b is written as _____.

T	– 1 min
S	– Ratio and proportion

Ans.

42. If a, b, c are in proportion then _____.

T	– 1 min
S	– Ratio and proportion

Ans.

43. Find x if $x + 5 = 9$

T – 1 min
S – Algebra

Ans.

44. $\frac{9}{11} = \frac{\quad}{44}$

T – 1 min
S – Ratio and proportion

Ans.

45. $\frac{\square}{52} = \frac{3}{13}$

T – 1 min
S – Ratio and proportion

Ans.

46. $2x + 10 = x + 5 + 5 + \square$

T – 1 min
S – Algebra

Ans.

47. 12 subtracted from m is written as

T – 1 min
S – Algebra

Ans.

48. 7 added to $x =$

T – 1 min
S – Algebra

Ans.

49. $-y$ divided by 7

T – 1 min
S – Algebra

Ans.

50. $7m + 4m - 3n - 2n =$

T – 1 min
S – Algebra

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 the value of $12m$ if $m = 4$

T	– 1 min
S	– Algebra

Ans.

52. Simplify $28p - 42p + 18p - 2p + 9p$

T	– 1 min
S	– Algebra

Ans.

53. If Kevin's score: Mark's score is $2 : 0.08$, what will be Mark's score?

T	– 1 min
S	– Ratio and proportion

Ans.

54. Find the value of $3m$ if $m = 8$.

T	– 1 min
S	– Algebra

Ans.

55. Simplify $7y + 22 + 8y - 7 - 5y - 3$

T	– 1 min
S	– Algebra

Ans.

56. Find the ratio of the area of a side and volume of the cube whose sides are 8 cm.

T	– 1 min
S	– Ratio and proportion

Ans.

57. 128 sweets were shared among 3 girls and 5 boys. The girls received $\frac{1}{3}$ of the boys' share. The girls shared their sweets in the ratio of 2 : 3 : 3. How many sweets were there in the smallest share?

T	– 1 min
S	– Ratio and proportion

Ans.

58. In 2002, the Art club of a school had 150 members. The number of girl members to boy members was 3 : 2. In 2003, some new members joined the club. Then the number of boy members doubled and was the same as the number of girl members. Find the number of new members who joined the Art club in 2003.

T – 1 min
S – Ratio and proportion

Ans.

59. Sam had 145 key chains and 70 badges at first. He exchanged 60% of his key chains for 3.5 dozen badges with his classmates. How many more badges than key chains did Sam have after that?

T – 1 min
S – Ratio and proportion

Ans.

60. Find the ratio of the price of coffee to that of tea, when coffee costs Rs. 24 per 100 g and the tea costs Rs 80 per kg.

T – 1 min
S – Ratio and proportion

Ans.

61. Two numbers are in the ratio 2 : 7. If the sum of the numbers is 81, find the numbers.

T – 1 min
S – Ratio and proportion

Ans.

62. A man takes 12 hours to travel 48 kilometres. How long will be take to travel 72 kilometres?

T – 1 min
S – Algebra

Ans.

63. Present age of Subramaniam's mother is six times Subramaniam's age. Five years hence, her age will be 20 years more than that of Subramaniam's age. Find their present age.

T – 1 min
S – Algebra

Ans.

64. At present the sum of Monica's age and Sheela's age is 44 yrs. After 2 years Monica's age will be three times that Sheela's. Find their present ages.

T – 1 min
S – Algebra

Ans.

65. The monthly consumption of cereals in a hostel of 400 students is 5200 kg. Find the consumption, if the number of students is only 65?

T	– 1 min
S	– Ratio and proportion

Ans.

66. The cost of 30 metres of polyester cloth is Rs 150. Find the cost of 16 metres of cloth.

T	– 2 min
S	– Ratio and proportion

Ans.

67. A family of 4 persons consumes 6 kg of sugar in a month. What will be the monthly consumption of sugar, if the number of family members becomes 6?

T	– 2 min
S	– Ratio and proportion

Ans.

68. Divided Rs. 625 between Alok and Sangita in the ratio 2 : 3.

T	– 2 min
S	– Ratio and proportion

Ans.

69. Divide Rs. 1200 among A , B and C in the ratio $2 : 3 : 5$.

T	– 2 min
S	– Ratio and proportion

Ans.

70. The ratio of the number of male and female workers in a textile mill is $5 : 3$. If there are 115 male workers. What is the number of female workers?

T	– 2 min
S	– Ratio and proportion

Ans.

71. The ratio of the length of the field to its width is $5 : 3$. Find its length if the width is 42 metres.

T	– 2 min
S	– Ratio and proportion

Ans.

72. Cost of 15 envelopes is Rs. 60. How many envelopes can be bought for Rs. 32?

T	– 2 min
S	– Ratio and proportion

Ans.

73. A rectangular sheet of paper is of length 1.2 m and width 42 cm. Find the ratio of the width of the paper to its length.

T	– 2 min
S	– Ratio and proportion

Ans.

74. The sum of 3 consecutive numbers is 27. Find the numbers.

T	– 2 min
S	– Algebra

Ans.

75. The product of 25 and 16 when divided by a number gives 20 as the answer. What is the number?

T	– 2 min
S	– Algebra

Ans.

76. The cost of 30 metres of cloth is Rs. 2550. Find the cost of 16 metres of cloth.

T	– 2 min
S	– Ratio and proportion

Ans.

77. In India, the number of villages electrified in two different years is 3000 and 350000. Find the ratio of the number of villages electrified in the two years.

T	– 2 min
S	– Ratio and proportion

Ans.

78. Fifteen post-cards cost Rs. 2.25. What will be the cost of 36 post-cards? How many post-cards can we buy for Rs. 45?

T	– 2 min
S	– Ratio and proportion

Ans.

79. The rent of a room for 4 months is Rs. 4800. What is the rent of the room for a year?

T	– 2 min
S	– Ratio and proportion

Ans.

80. 24 workers can build a well in 15 days. How many days will 9 workers take to build a similar well?

T	– 2 min
S	– Ratio and proportion

Ans.

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 scale of a map is usually indicated in one corner of the map day by writing the ratio of the distance on the map to the corresponding distance on the ground. This ratio is called representative fraction (R.F.) of the camp. The scale of map is 1 : 100000. What actual distance would 4 cm on the map represent.

T – 2 min
S – Ratio and proportion

Ans.

82. Karen had a sum of money. She spent $\frac{1}{8}$ of the money on a book and Rs 12 on a bag. Then she had $\frac{3}{4}$ of the money left. Find the sum of money she had at first.

T – 2 min
S – Algebra

Ans.

83. Razak scored an average of 82 marks for English, Mathematics and Science. He scored 8 marks more in Science than in English and 8 marks less in Mathematics than in English.
How many marks did he score for Science?

T – 2 min
S – Algebra

Ans.

84. Milly and Sally have some stamps. If Milly gives $\frac{5}{9}$ of her stamps to Sally, the ratio of the number of stamps Milly has to the number of stamps Sally has will be 2 : 9. Find the ratio of the number of stamps Milly has to the number of stamps Sally has.

T – 2 min
S – Algebra

Ans.

85. The sum of a set of 3 consecutive numbers is 45. Find the 3 consecutive numbers.

T – 2 min
S – Algebra

Ans.

86. The ratio of the capacity of Jar A to the capacity of Jar B is 5 : 4.

Jar A is empty and Jar B is $\frac{1}{3}$ filled with water.

If the water in Jar B is all poured into Jar A, what fraction of Jar A will be filled?

T	– 2 min
S	– Ratio and proportion

Ans.

87. Four times a certain number is as much less than 60 as seven times a number is greater than 61.

T	– 2 min
S	– Ratio and proportion

Ans.

88. Anshu is three times as old as Deepak. After 3 years she will be twice as old as Deepak. Find their present age.

T	– 2 min
S	– Ratio and proportion

Ans.

89. In a game, one has to hit either the white target or the black target. 4 more points were awarded for hitting a black target. Johari hit 32 white targets and 28 black targets and scored 412 points.

How many points would Johari score if he hit 16 white targets and 12 black targets?

T	– 2 min
S	– Ratio and proportion

Ans.

90. Mr Singh sold a total of 792 pens on Monday and Tuesday. On Monday, the ratio of the number of blue pens to black pens to red pens and sold was 5 : 3 : 2. On Tuesday, the ratio was 2 : 7 : 4. If he sold the same number of red pens on both days, find the total number of blue pens he had sold in the 2 days.

T	– 2 min
S	– Ratio and proportion

Ans.

91. A man cut off 12.75 m from a length of rope. His son cut off another piece of rope which was 7.3 m shorter than the piece cut off by his father. The remaining length of the rope was thrice the total length cut off. What was the original length of the rope?

T	– 2 min
S	– Ratio and proportion

Ans.

92. Ram had 125 red ties and 60 black ties at first. He exchanged 40% of his red ties for 2 dozen black ties with his classmate. How many more black ties their red ties did Ram have after that?

T	– 2 min
S	– Algebra

Ans.

93. A cupboard is filled with 'p' number of black and white shirts. There were $\frac{2}{3}$ as many black shirts as white shirts. How many white shirts were there? Express the answer in its simplest form?

T – 2 min
S – Algebra

Ans.

94. Wheat Flour is sold at Rs. 1.20 per kilogram. How much does 700 g of wheat flour cost?

T – 2 min
S – Ratio and proportion

Ans.

95. Willy is y years old. Venessa is 3 years older than Willy.
(a) Find, in terms of y , the sum of their present ages.
(b) What is the sum of their ages y years from now?

T – 2 min
S – Algebra

Ans.

96. The cost price of 24 radio sets is Rs. 18960. Determine the cost price of one radio set if each costs the same?

T – 3 min
S – Ratio and proportion

Ans.

97. A salt solution is made by mixing salt and water in the ratio of 7 : 30 respectively. If 1 cm^3 of water weights 1 g, how many cubic centimetres of water is needed for 630 g of salt?

T – 3 min
S – Algebra

Ans.

98. A unit bought 2 dozen apple and 15 oranges. Cost of each apple is Rs.5 and each oranges is Rs. 3. How much did he pay for the fruits?

T – 3 min
S – Ratio and proportion

Ans.

99. A rectangular tank measuring 25 cm by 14 cm by 12 cm is $\frac{1}{4}$ filled with a liquid. A metal block of volume 720 cm^3 is put into the liquid. What is the new height of the liquid in the tank?

T – 3 min
S – Ratio and proportion

Ans.

100. The ratio of the length of a school ground to its width is 5 : 2. Find its length if the width is 60 meters.

T – 3 min
S – Ratio and proportion

Ans.

Tools at a glance

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

Opening Window

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

T —
S —

Box with time break-up of questions (T) and its concept (S, i.e., subject)



Let's Chat

Brain Teasers



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.



Extra Diet

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