Grade 07
Unit 05

Maths

Course Outline

Formative 2
- ⊚ **Comparing quantities**
- ⊚ **Triangles**
- ⊚ **Congruence of triangles**

MAT
(Monthly Achievement Tests)

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.

Short Code: 447308

Test ID: NMM07U050

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.

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 $\dfrac{4}{-3}$ is

   T – 1 min
   S – Comparing quantities

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

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

   Ans.

2. The third proportional to 8 and 12 is

   T – 1 min
   S – Comparing quantities

   (a) 16   (b) 18

   (c) 10   (d) 48

   Ans.

3. In what time will Rs. 8000 amount to Rs. 8240 at 4% per annum simple interest?

   (a) 8 months   (b) 9 months

   T – 1 min
   S – Comparing quantities

   (c) $1\dfrac{1}{4}$ years   (d) $1\dfrac{1}{2}$ years

   Ans.

4. Express 24 : 40 as the simplest form.

   T – 1 min
   S – Comparing quantities

   (a) 3 / 5   (b) 2 / 5

   (c) 5 / 3   (d) none of these

   Ans.

5. Find x if $3 : 5 :: 21 : x$.

(a) 30 (b) 40

(c) 35 (d) 70

T – 1 min
S – Comparing quantities

Ans.

6. If the cost of 9 toys is Rs. 333. Find the cost of 16 toys.

(a) Rs. 592 (b) Rs. 600

(c) Rs. 620 (d) Rs. 630

T – 1 min
S – Comparing quantities

Ans.

7. Convert $\dfrac{2}{3}$ in to percentage.

(a) 60% (b) 66.66%

(c) 50% (d) 40%

T – 1 min
S – Comparing quantities

Ans.

8. The 0.8% into the fraction is equal to

(a) $\dfrac{1}{25}$ (b) $\dfrac{1}{5}$

(c) $\dfrac{1}{125}$ (d) 8

T – 1 min
S – Comparing quantities

Ans.

9. If two triangles are congruent and one of the triangle is an equilateral triangle then the angle of triangle is

(a) 45° (b) 60°

(c) can't say (d) 75°

T – 1 min
S – Congruence of triangles

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 – Congruence of triangles

Ans.

True or False

11. To convert a fraction into a percentage, we multiply the fraction by 100.

T – 1 min
S – Comparing quantities

Ans.

12. Loss $= CP + SP$

T – 1 min
S – Loss

Ans.

13. Amount = Principal + Interest

| T | – 1 min |
| S | – Comparing quantities |

Ans.

14. $0.8 = 80\%$

| T | – 1 min |
| S | – Comparing quantities |

Ans.

15. In the ratio $a : b$, the first term is b and the second term is a.

| T | – 1 min |
| S | – Comparing quantities |

Ans.

16. The sum of any two sides of a triangle is less than the third side.

| T | – 1 min |
| S | – Triangle |

Ans.

17. In an isosceles triangle the angles opposite to the equal sides are equal.

| T | – 1 min |
| S | – Triangle |

Ans.

18. A triangle having two sides equal is called an isosceles triangle.

| T | – 1 min |
| S | – Triangle |

Ans.

19. The sum of the angles of a triangle is $270°$.

| T | – 1 min |
| S | – Triangle |

Ans.

20. In a right angle triangle, the hypotenuse is the longest side.

| T | – 1 min |
| S | – Triangle |

Ans.

Fill in the blanks

21. Two line segments are congruent if they have _____ .

T	– 1 min
S	– Congruence triangles

Ans.

22. Two triangles are congruent if they have _____.

T	– 1 min
S	– Congruence triangles

Ans.

23. In _____, the hypotenuse is the longest side.

T	– 1 min
S	– Triangle

Ans.

24. Two rectangles are congruent if they have the same _____ and _____.

T	– 1 min
S	– Congruence triangles

Ans.

25. A scalene triangle has _____.

T	– 1 min
S	– Comparing quantities

Ans.

26. _____ $=\left(\dfrac{\text{Gain}}{\text{CP}} \times 100\right)\%$

T	– 1 min
S	– Comparing quantities

Ans.

27. By a certain percentage we mean that many _____.

T	– 1 min
S	– Comparing quantities

Ans.

28. An equality of two ratios is called _____ .

T	– 1 min
S	– Comparing quantities

Ans.

29. If the three sides of a triangle are equal to the three corresponding sides of another triangle, the the triangles are _____.

T	– 1 min
S	– Congruence of triangles

Ans.

30. Two line segments are congreuent if _____.

T	– 1 min
S	– Congruence of triangles

Ans.

Answer the following:

31. A ladder, 17 m long, when set against the wall of a house, just reaches a window at a height of 15 m from the ground. How far is the lower end of the ladder from the base of the wall?

T	– 1 min
S	– Triangle

Ans.

32. The lengths of the sides of a right triangle are 6 cm and 8 cm. What is the length of its hypotenuse?

T	– 1 min
S	– Triangle

Ans.

33. In figure, *AD* bisects ∠*A* and *AD*⊥*BC*.
(i) Is △*ADB* ≅ △*ADC* by *ASA* congruence condition?
(ii) If yes, state the three facts you have used to answer (i).

A

B   D   C
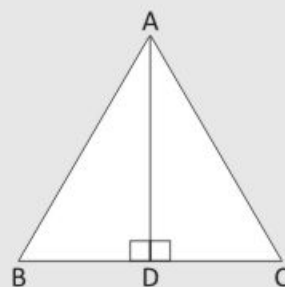
Ans.

Questions 34–38. Find the following.

34. 50% of 164

Ans.

35. 75% of 12

Ans.

36. $12\frac{1}{2}$% of 64

Ans.

37. 9 is 25% of what number?

Ans.

38. 75% of what number is 15?

Ans.

Question 39–44. △ABC and △PQR are congreuent under the correspondence ABC↔QRP. Write the parts of △ABC that correspond to

39. ∠P

T	– 6 min
S	– Congruence of Triangles

Ans.

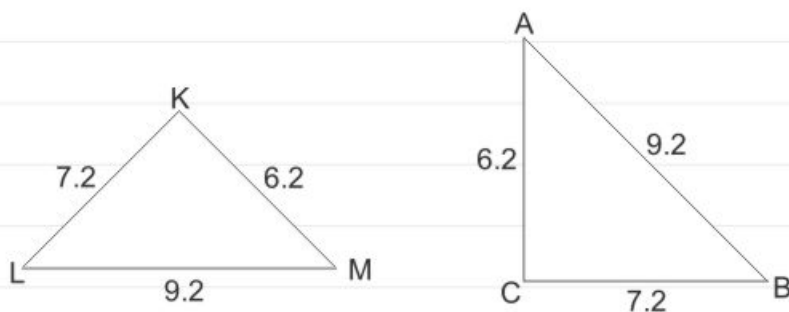**40.** ∠Q

Ans.

41. ∠R

Ans.

42. PQ

Ans.

43. QR

Ans.

44. PR

Ans.

Questions 45–47. In △KLM and △ABC,

45. Examine whether the two triangles are congruent or not.

T	– 3 min
S	– Congruence of Triangles

Ans.

46. The side KL congruent with the side_____.

Ans.

47. The angle M congruent with the angle _____.

Ans.

48. Simple interest on a certain sum is $\frac{16}{25}$ of the sum. Find the rate percent and the time if both are numerically equal.

T	– 1 min
S	– Comparing quantities

Ans.

49. Find the simple interest when principal amount = Rs. 6400, Rate = 6% p.a. and time = 2 years.

| T | – 1 min |
| S | – Comparing quantities |

Ans.

50. A sum of Rs. 7500 was deposited in a bank on 1st Feb, 2004 and withdrawn on 1st May, 2004. If the bank pays simple interest at 6% per annum, find the amount.

| T | – 1 min |
| S | – Comparing quantities |

Ans.

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. Two poles of height 9 m and 14 m stand upright on a plane ground. The distance between their feet is 12 m. Find the distance between their tops.

T – 1 min
S – Triangle

Ans.

52. In a triangle ABC, $AB = 11$ cm, $BC = 60$ cm and $AC = 61$ cm. Examine if $\triangle ABC$ is a right triangle then, which angle is equal to 90°?

T – 1 min
S – Triangle

Ans.

53. The sides of a triangle are 5.5 cm, 30 cm and 30.5 cm. Show that it is a right triangle.

T – 1 min
S – Triangle

Ans.

54. In $\triangle ABC$, if $3\angle A = 4\angle B = 6\angle C$, calculate $\angle A$, $\angle B$ and $\angle C$.

T	– 1 min
S	– Triangle

Ans.

55. A man goes 15m due west and the 8m due north. How far is he from the starting point?

T	– 1 min
S	– Triangle

Ans.

Questions 56–57. Convert the following:

56. 50 sq. cm in sq mm

T	– 2 min
S	– Comparing quantities

Ans.

57. 1000 sq. cm in sq. m

Ans.

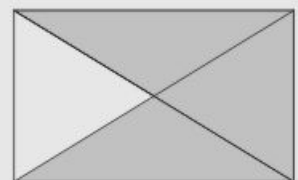**58.** An item sold for Rs. 540 at a loss of 5%. Then what is its cost price?

Ans.

59. If you had Rs. 2400 in your account and the interest rate were 5% per annum. After how many years would you earn Rs. 240 as interest?

Ans.

60. Find the percentage of the shaded part?

Ans.

61. A survey of 40 children show that 25% of them liked playing football. How many children liked playing football?

T – 1 min
S – Comparing quantities

Ans.

62. Rahul bought a sweater and saved Rs. 20 when a discount of 25%. was given. What was the price for the sweater before the discount?

T – 1 min
S – Comparing quantities

Ans.

63. 8% children of a class of 25 like getting wait in rains. How many children wait in rain?
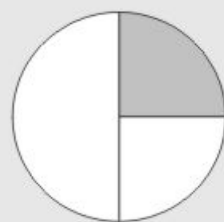
T – 1 min
S – Comparing quantities

Ans.

64. If 65% of students in a class have got a cycle, what percent do not have bicycles?

T	– 1 min
S	– Comparing quantities

Ans.

65. Finding the percentage of shaded and unshaded areas.

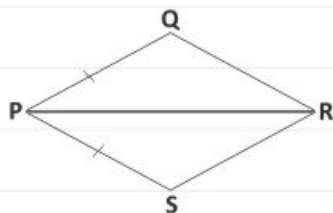| T	– 1 min
S	– Comparing quantities

Ans.

Questions 66–69. Find the percentage of different heights for the following data.

	Height	Number in Children	In fraction	In Percentage
66.	110 cm	22	$\dfrac{22}{100}$	_____
67.	120 cm	25	$\dfrac{25}{100}$	_____
68.	128 cm	32	$\dfrac{32}{100}$	_____
69.	130 cm	21	$\dfrac{21}{100}$	_____

T	– 5 min
S	– Comparing quantities

Ans.

Q. 70-72 In figure PQ = PS and QR = RS

70. State the three pairs of equal parts in $\triangle PQR$ and $\triangle SPR$.

T	– 2 min
S	– Congruence of triangles

Ans.

71. Is $\triangle QPR \cong \triangle SPR$. Why or why not ?

T	– 2 min
S	– Congruence of triangles

Ans.

72. Does PR direct $\angle QPS$? Give reasons.

T	– 2 min
S	– Congruence of triangles

Ans.

73. Find 75% of 50.

T	– 2 min
S	– Comparing quantities

Ans.

75. Find 80% of 600.

T	– 2 min
S	– Comparing quantities

Ans.

76. Out of 60 children in a class, 24 are boys what is the percentage of girls.

T	– 2 min
S	– Comparing quantities

Ans.

Answer the following questions.

(A)   **(B)**
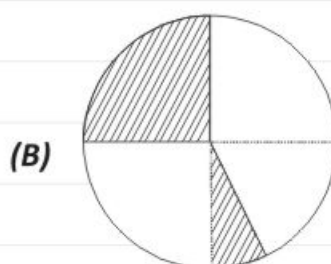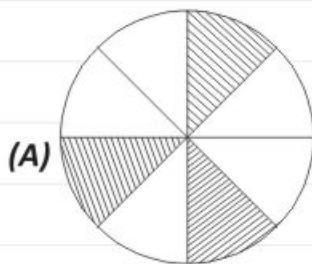
77. What percent of then figure (A) are shaded.

T	– 8 min
S	– Comparing of Triangle

Ans.

78. What percent of these figure (A) are not shaded.

Ans.

79. What percent of figure (B) are not shaded.

Ans.

80. What percent of figure (B) shaded

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**

Questions 81–83. A collection of 10 chips is given with different colours. Fill the table and find the percentage of chips of each colour.

G G G G

B B B

R R R
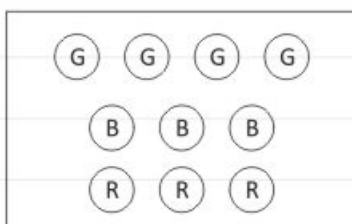
T – 3 min
S – Comparing quantities

		Number	Fraction	On hundred	On hundred
81.	Green	4	$\frac{4}{10}$	$\frac{4}{100}$	_____
82.	Blue	3	$\frac{3}{10}$	$\frac{30}{100}$	_____
83.	Red	3	$\frac{3}{10}$	$\frac{30}{100}$	_____

Ans.

84. Convert the $\frac{3}{7}$ into percentage

T – 3 min
S – Comparing quantities

Ans.

85. Mala has a collection of bangles. She has 20 gold bangles and 10 silver bangles. What is the percentage of bangles of each type?

T	– 2 min
S	– Comparing quantities

Ans.

86-89, A survey of 200 students showed that, 40% liked mathematics, 30% liked science and 10% liked Hindi and remaining like English. Answer the following questions:

86. Number of students who like mathmatics

T	– 8 min
S	– Comparing quantities

Ans.

87. Number of students who like science.

Ans.

88. Number of students who like Hindi.

Ans.

89. Number of students who like English.

Ans.

90. Prem bought a computer and saved Rs. 3000 when a discount of 10% was given. What was the price of the computer before discount ?

T	– 3 min
S	– Comparing quantities

Ans.

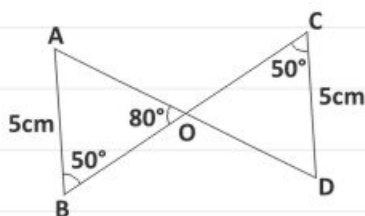**91.** Define the SSS property of congruence of a triangle.

Ans.

92. Define the ASA property of congruence of a triangle.

Ans.

93. Define the RHS property of congruence of triangle.

Ans.

94-100, In figure

94. Is triangle *ABO* ≅ triangle _____

Ans.

95. The side AB congruent to _____

Ans.

96. The side AO congruent to _____

Ans.

97. The side BO congruent to _____.

Ans.

98. The side $\angle ABO =$

Ans.

99. The side $\angle OAB =$

Ans.

100. $\angle AOB =$

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.

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

T — ....
S — ....

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