# Grade 09
# Unit 02

# Maths

## Course Outline

- Coordinate Geometry
- Euclid's Geometry
- Lines and Angles

# MAT

(Monthly Achievement Tests)

Short Code: 447310

Test ID: NMM09U020

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 each question, four options are given, one of them is the correct answer. Make you choice and write its name (a, b, c or d) in the answer box provided.***

1. If $a = b$ and $b = c$, then

T – 1 min
S – Euclid's geometry

(a) $a > c$ (b) $a < c$

(c) $a = c$ (d) cannot be determined

Ans.

2. The line drawn through the centre of a circle to bisect a chord is _____ to the chord.

T – 1 min
S – Euclid's geometry

(a) parallel (b) equal

(c) perpendicular (d) none of these

Ans.

3. The number of chords that a circle can have

T – 1 min
S – Euclid's geometry

(a) Infinite (b) finite

(c) three (d) two

Ans.

4. If there is a point which lies on three or more lines then these lines are said to be

T – 1 min
S – Euclid's geometry

(a) parallel (b) intersecting

(c) concurrent (d) collinear

Ans.

5. If lines $AB, AC, OD$ and $AE$ are parallel to a line $l$, then points $A, B, C, D$ and $E$ are

T – 1 min
S – Euclid's geometry

(a) concurrent (b) collinear

(c) congruent (d) non collinear

Ans.

6. If $l, m, n$ are lines in the same plane such that $l$ intersects $m$ and $n \| m$ then $l$ and $n$

(a) intersect (b) parallel

(c) collinear (d) cannot be determined

T – 1 min
S – Euclid's geometry

Ans.

7. A ray is denoted by

(a) $\overline{AB}$ (b) $\overrightarrow{AB}$

(c) $\overleftrightarrow{AB}$ (d) $\overline{A}\,B$

T – 1 min
S – Lines and angles

Ans.

8. Supplementary angle is the sum of

(a) 90° (b) 270°

(c) 180° (d) 360°

T – 1 min
S – Lines and angles

Ans.

9. An angle which is greater than 90° & less than 180°

(a) a cute angle (b) linear pair

(c) complementary (d) obtuse angle

T – 1 min
S – Lines and angles

Ans.

10. When the distance between two lines is constant then the two lines are said to be:

(a) intersecting lines (b) collinear lines

(c) parallel lines (d) non-collinear lines

T – 1 min
S – Lines and angles

Ans.

11. The complement of 70° is

(a) 30° (b) 110°

(c) 20° (d) 10°

T – 1 min
S – Lines and angles

Ans.

12. Pair of corresponding angles are

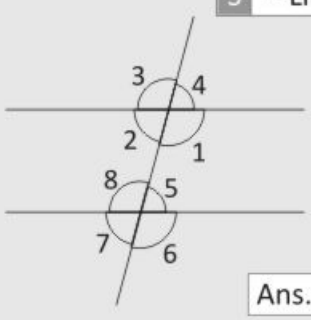
(a) $\angle 1$ & $\angle 3$

(b) $\angle 2$ & $\angle 5$

(c) $\angle 4$ & $\angle 5$

(d) $\angle 3$ & $\angle 7$

T – 1 min
S – Lines and angles




Ans.

13. Consecutive interior angles are also known as:
(a) corresponding angles
(b) straight angles
(c) co-interior angles
(d) alternative angles

T – 1 min
S – Lines and angles

Ans.

14. If the sum of two adjacent angles is 180° then they are called
(a) reflex angles
(b) complementary angles
(c) linear pair
(d) vertically opposite angle

T – 1 min
S – Lines and angles

Ans.

15. *OX'* is also called _____ directions of x-axis.
(a) positive
(b) negative
(c) can be positive or negative
(d) left

T – 1 min
S – Co-ordinate geometry

Ans.

16. If the x-co-ordinate is –3 and y-co-ordinate is –2, then the point is
(a) (–3, –2) (b) (–2, –3)
(c) (2, –3) (d) (–3, 2)

T – 1 min
S – Co-ordinate geometry

Ans.

17. *y*-coordinate is also called.
(a) positive axis (b) abscissa
(c) negative axis (d) ordinate

T – 1 min
S – Co-ordinate geometry

Ans.

18. *XOY* is called _____ quadrant.
(a) I (b) II
(c) III (d) IV

T – 1 min
S – Co-ordinate geometry

Ans.

19. In a parallelogram *ABCD*, *E* and F are the midpoints of sides *AB* and *CD* respectively. The line segment *AF* and *EC*
(a) bisect the diagonal *BD*
(b) are perpendicular on *BD*
(c) trisect the diagonal *BD*
(d) are equal

T – 1 min
S –

Ans.

20. *x*-coordinate is also called
(a) positive axis (b) abscissa
(c) ordinate (d) none of these

T – 1 min
S –

Ans.

***Fill in the blanks***

21. The plane is called the Cartesian, or co-ordinate plane and the lines are called the _____ .

T – 1 min
S – Co-ordinate geometry

Ans.

22. The point of intersection of the axis is called _____ .

T – 1 min
S – Co-ordinate geometry

Ans.

23. _____ is a combination of points, lines and planes.

T – 1 min
S – Euclid's geometry

Ans.

24. Two lines which are both parallel to same line are _____ to each other.

T – 1 min
S – Euclid's geometry

Ans.

25. Two distinct intersecting lines _____ be parallel to the same line.

T – 1 min
S – Euclid's geometry

Ans.

26. If two lines intersect each other, then the angles so formed are known as_____ .

T – 1 min
S – Lines and angles

Ans.

27. Axis divide the plane into _____ .

T – 1 min
S – Co-ordinate geometry

Ans.

28. A ray is a line with _____ .

T – 1 min
S – Lines and angles

Ans.

29. An angle which is greater than 180° and less than 360° is called _____ .

T – 1 min
S – Lines and angles

Ans.

30. An angle which is equal to 180° is a _____ .

T – 1 min
S – Lines and angles

Ans.

***True or False***

31. $\overrightarrow{AB} = \text{ray } \overrightarrow{BA}$

T – 1 min
S – Euclid's geometry

Ans.

32. A ray has finite length

T – 1 min
S – Euclid's geometry

Ans.

33. A system of axioms is called postulates.

T – 1 min
S – Euclid's geometry

Ans.

34. Two distinct points in a plane determine a unique line.

T – 1 min
S – Euclid's geometry

Ans.

35. If a line is perpendicular to one of the two given parallel lines then it is perpendicular to other lines.

T – 1 min
S – Lines and angles

Ans.

36. The point of intersection of the axis is called co-ordinate.

T – 1 min
S – Co-ordinate geometry

Ans.

37. If three or more points lie on the same line they are called non-collinear point.

T – 1 min
S – Lines and angles

Ans.

38. A right angle is exactly equal to 45°

T – 1 min
S – Lines and angles

Ans.

39. A line with two end point is called a line segment.

T – 1 min
S – Lines and angles

Ans.

40. If two lines intersect each other, then the vertically opposite angles are equals.

T – 1 min
S – Lines and angles

Ans.

***Simple Questions***

41. If abscissa is 1 & ordinate is $-3$. Find the co-ordinates of the points.

T – 1 min
S – Co-ordinate geometry

T – 1 min
S – Euclid's geometry

Ans.

42. What is the ordinate in $(-7, -8)$?

T – 1 min
S – Co-ordinate geometry

Ans.

43. In the equation $7x - 3y = 12$, the co-ordinate of the point where the graph cuts the $y$ –axis.

T – 1 min
S – Co-ordinate geometry

Ans.

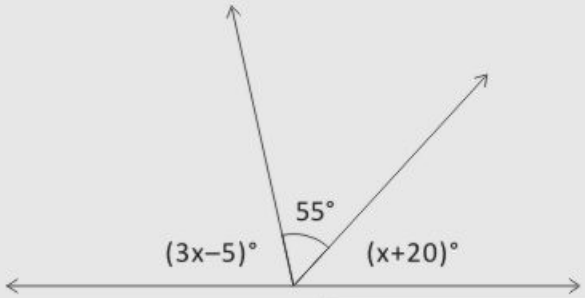
44. Find the co-ordinates of the point where the graph cuts the y-axis in the equation $3x - 4y = 12$

T – 1 min
S – Co-ordinate geometry

Ans.

45. The value of $x$ in the given figure is

T – 1 min
S – Lines and angles




Ans.

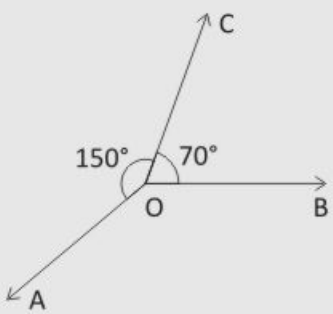
46. If one angle of a linear pair is 95° then its other angle will be

T – 1 min
S – Lines and angles

Ans.

47. Find the supplement of 70°.

T – 1 min
S – Lines and angles



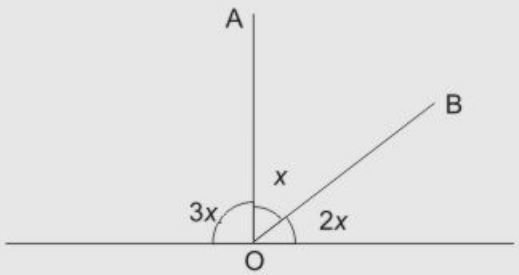

Ans.

48. Find the complement of 23°.

T – 1 min
S – Lines and angles

Ans.

49. Find $\angle AOB$ ?




T – 1 min
S – Lines and angles

Ans.

50. Find the reflex angles of 157°.

T – 1 min
S – Lines and angles

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.**

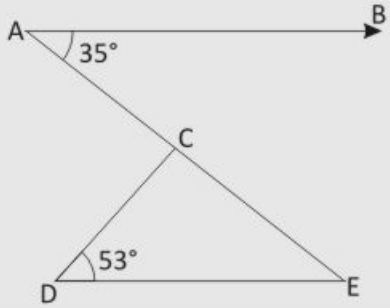
51. Explain the incidence axioms ?

T – 1 min
S – Euclid's geometry

Ans.

52. In the figure of $AB \| DE$, $\angle BAC = 35°$ and $\angle CDE = 53°$ find $\angle DCE$?

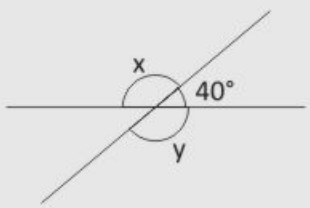
T – 2 min
S – Lines and angles




Ans.

53. Find x and y.
Lines and angles

T – 2 min
S – Lines and angles

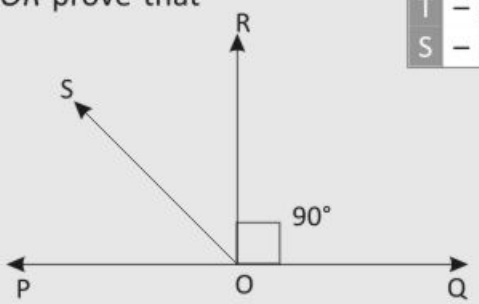



Ans.

54. In figure *POQ* is a line ray *OR* is perpendicular to live *PQ*. *OS* is another ray lying between rays *OP* and *OR* prove that

$$\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$$

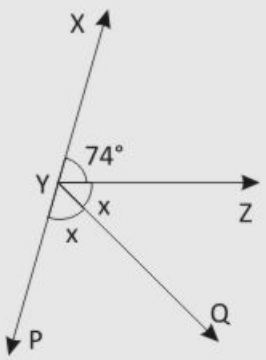
T – 2 min
S – Lines and angles




Ans.

55. Find *x* and reflex $\angle QYP$.

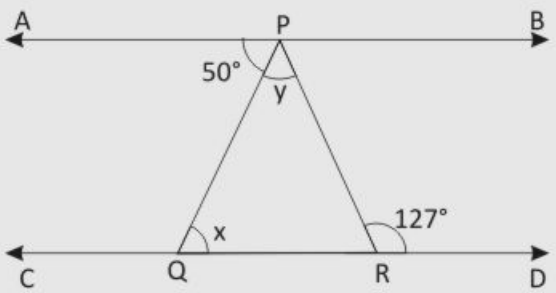
T – 2 min
S – Lines and angles




Ans.

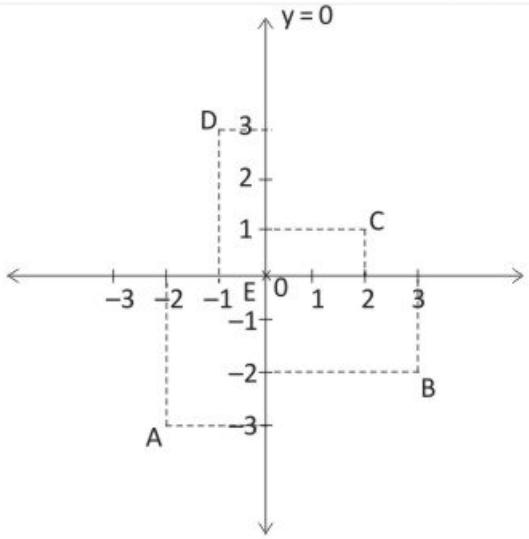
56. Find *x* and *Y*.

T – 2 min
S – Lines and angles




Ans.

***Questions 57-60, See the figure and answer the following questions.***




57. The co-ordinate of *B*

T – 4 min
S – Co-ordinate geometry

Ans.

58. The abscissa of the point *D*

Ans.

59. The point identified by the co-ordinates $(-2, -3)$

Ans.

60. The ordinate of the point C

Ans.

61. What is the name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

T – 2 min
S – Co-ordinate geometry

Ans.

62. Write the name of the point where co-ordinate axis intersect?

T – 2 min
S – Co-ordinate geometry

Ans.

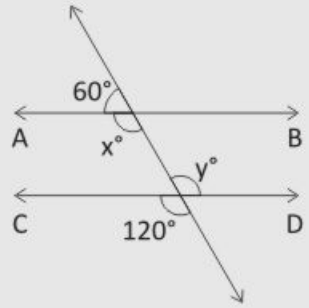
63. Explain the term Cartesian system?

T – 2 min
S – Co-ordinate geometry

Ans.

64. Find the values of $x$ and $y$?

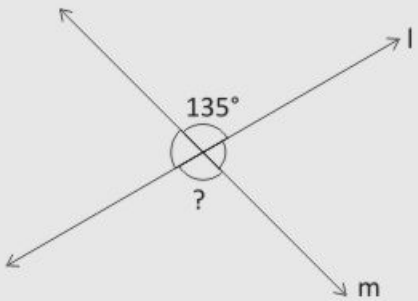
T – 2 min
S – Lines and angles




Ans.

65. Find the value of $x$.

T – 2 min
S – Lines and angles




Ans.

66. If the linear pairs are in the ratio of 4 : 5, find the angles.

T – 2 min
S – Lines and angles

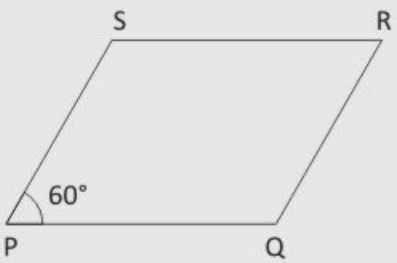
Ans.

67. A portion of a line with end points is called _____.

T – 1 min
S – Lines and angles

Ans.

68. In a parallelogram *PQRS* if $\angle P = 60°$ then find $\angle Q$, $\angle R$ & $\angle S$.




T – 2 min
S – Lines and angles

Ans.

***Match the following:***

T – 5 min
S – Lines and angles

| | | |
|---|---|---|
| 69. | The angle which is equal to 180° | (i) Obtuse angle |
| 70. | The angle which is greater than 90° & less than 180° | (ii) Acute angle |
| 71. | The angle which is greater than 0° & less than 90° | (iii) Straight angle |
| 72. | The angle which is greater than 180° & less than 360° | (iv) Right angle |
| 73. | The angle which is equal to 90° | (v) Reflex angle |

Ans.

74. What is sum of angles of a linear pair?

T – 1 min
S – Lines and angles

Ans.

75. If a° and b° form a linear pair such that $a° - b° = 60°$ then the measure of $a°$ & $b°$ is

T – 1 min
S – Lines and angles

Ans.

76. Euclidean geometry is a geometry dealing with _____

T – 1 min
S – Lines and angles

Ans.

77. A figure formed by straight lines only, is called _____

T – 1 min
S – Lines and angles

Ans.

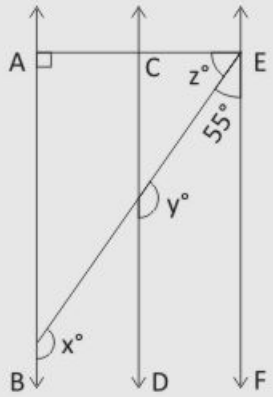
78. What is a geometrical figure?

T – 2 min
S – Euclid's geometry

Ans.

79. In the figure $AB \| CD$ and $CD \| EF$. Also $EA \perp AB$. If $\angle BEF = 55°$, find the values of $x$,$y$ and $z$.

| | |
|---|---|
| T | – 2 min |
| S | – Lines and angles |




Ans.

80. $AB$ is a line segment and line $l$ is its perpendicular bisector. If a point lies on $l$. Show that $P$ is equidistant from $A$ and $B$.

| | |
|---|---|
| T | – 2 min |
| S | – Lines and angles |

Ans.

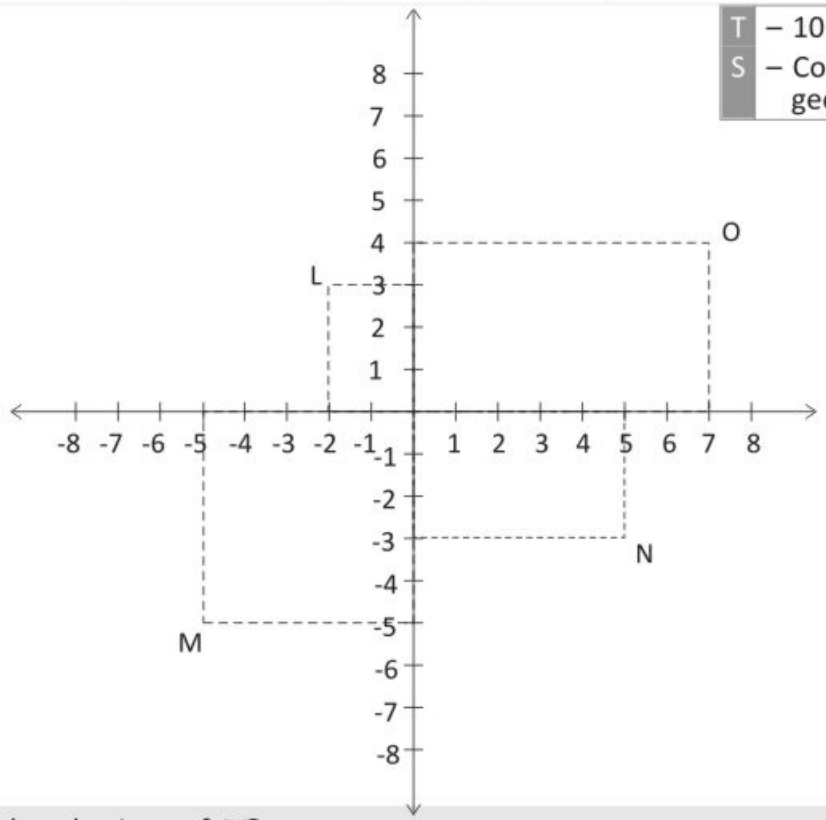
Opening Window

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**

***The questions 81-84, For answering, use the given diagram:***

T – 10 min
S – Co-ordinate geometry




81. Find the abscissa of *M*?

Ans.

82. Find the co-ordinate of *N*?

Ans.

83. Find the ordinate of *O*?

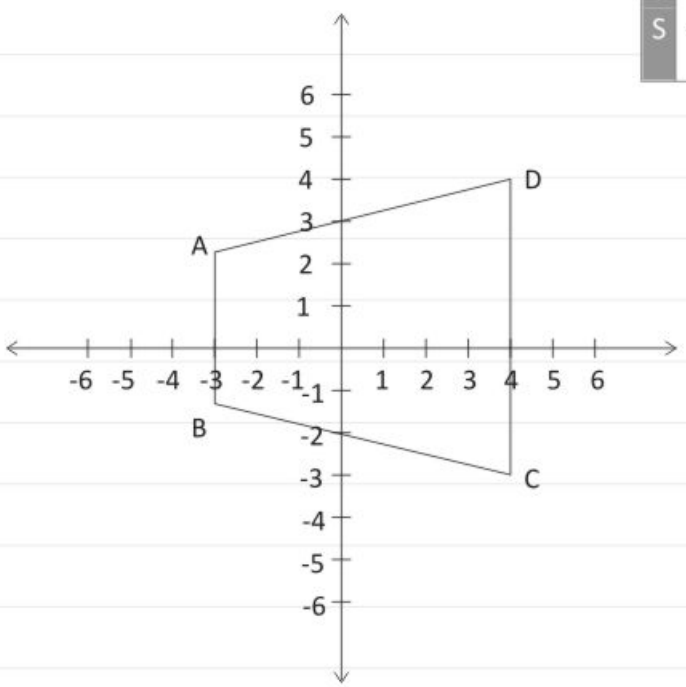
Ans.

84. Find the quadrant of *L*?

Ans.

***For answering Questions 85-87, Use the given figure:***

T – 6 min
S – Co-ordinate geometry




85. The given figure is

Ans.

86. The co-ordinates of *C* is

Ans.

87. The ordinate of $D$ is

Ans.

88. Define the following terms

(i) Concurrent points

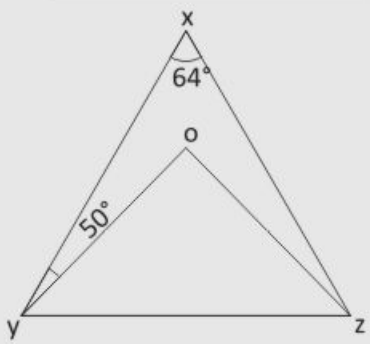
(ii) Point of intersection

T – 2 min
S – Euclid's geometry

Ans.

89. In the figure $\angle x = 64°$, $\angle xyz = 50°$. If $yo$ and $zo$ are the bisector of $\angle xyz$ and $\angle xzy$ respectively of $\Delta xyz$ find $\angle ozy$ and $\angle yoz$.

T – 2 min
S – Line and angles




Ans.

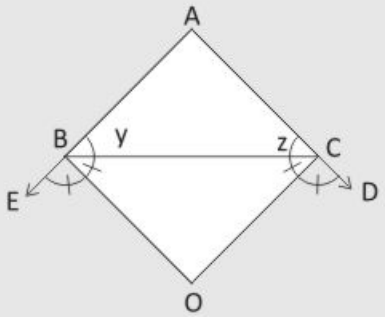
90. *ABC* and *DBC* are two isosceles triangles on the same base *BC* show that, $\angle ABD = \angle ACD$.

| | |
|---|---|
| T | – 3 min |
| S | – Line and angles |

Ans.

91. In the figure the side $AB$ and $AC$ of $\Delta ABC$ are produced to points $E$ and $D$ respectively. If bisectors $BO$ and $CO$ of $\angle CBE$ and $\angle BCD$ respectively meet at point $O$, then prove that $\angle BOC = 90° - \frac{1}{2}\angle BAC$.

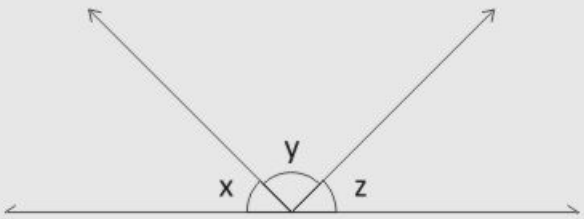
| | |
|---|---|
| T | – 3 min |
| S | – Line and angles |




Ans.

92. If $x : y : z = 5 : 6 : 9$ as shown. Find $x$, $y$ and $z$.

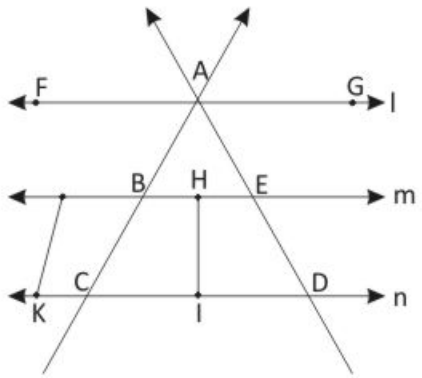
| | |
|---|---|
| T | – 3 min |
| S | – Line and angles |




Ans.

***Questions 93- 96 , From the figure answer the following questions.***

| | |
|---|---|
| T | – 8 min |
| S | – Line and angles |




93. Number of parallel lines.

Ans.

94. Number of rays.

Ans.

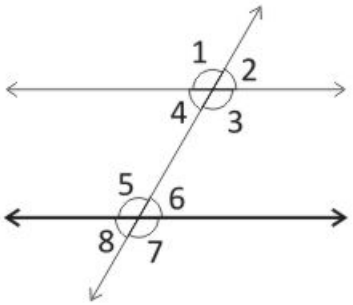
95. Maximum number of intersecting lines at the point

Ans.

96. Maximum number of collinear points

Ans.

***Questions 97-99, From the given figure answer the following questions***




T – 9 min
S – Line and angles

97. Pair of corresponding angles.

Ans.

98. Interior angles

Ans.

99. Exterior angles

Ans.

100. Find the value of $x$, when $y = 5$ in the equation $4x + 3y - 7 = 0$.

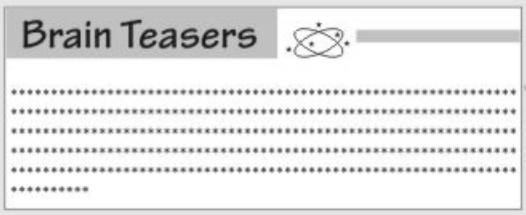
Ans.

# 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 |