

Class – 9

Session -2021-22

TERM 1 Set 02 (even)

Subject- Mathematics (Standard) 041

Time Allowed: 90 minutes

Maximum Marks: 40

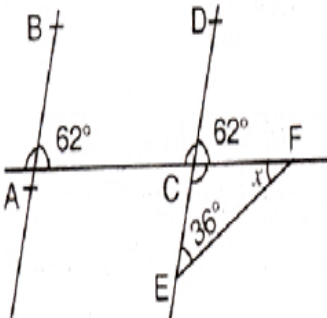
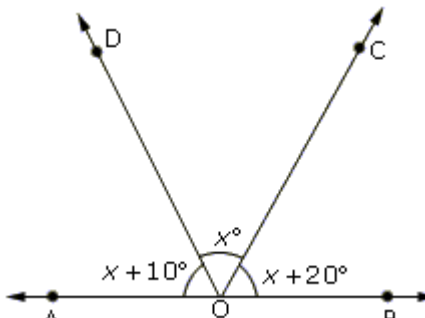
General Instructions:

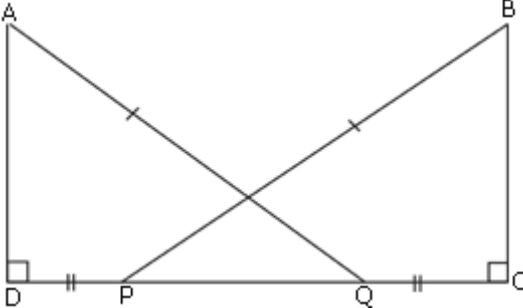
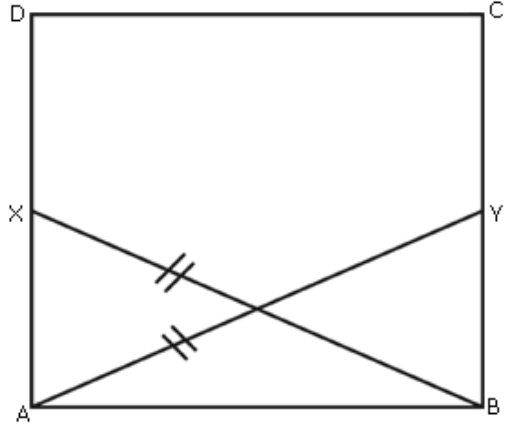
1. The question paper contains three parts A, B and C
2. Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted
3. Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted
4. Section C consists of 10 questions based on two Case Studies. Attempt any 4 questions from each Case Studies.
5. There is no negative marking.

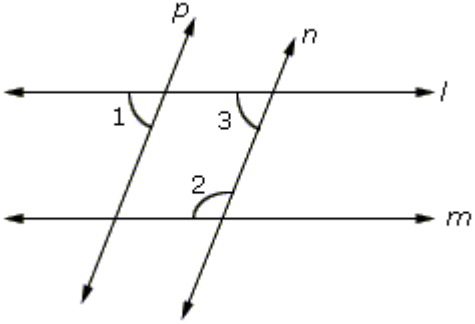
SECTION A

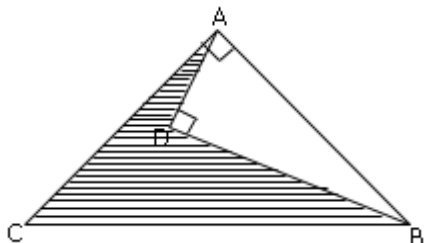
(Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted)

1.	The name of the horizontal line in the cartesian plane which determines the position of a point is called: (a) Origin (b) X-axis (c) Y-axis (d) Quadrants	[1]
2.	To locate the position of an object or a point in a plane, we require two lines, they are (a) Parallel to each other (c) Both (a) and (b) (b) perpendicular to each other (d) None of these	[1]
3.	The point which lie on x and Y-axis is (a) (0, 8) (b) (0, 0) (c)(4, 7) (d) (-7, 0)	[1]
4.	Show that $0.2353535\dots = 0.\overline{235}$. can be expressed in the form p/q , where p and q are co-prime integers and $q \neq 0$, then p is (a) 235 (b) 233 (c) 999 (d) 990	[1]

5.	Which of the following is equal to x^2 ? (a) $x^{\frac{12}{7}} - x^{\frac{5}{7}}$ (b) $\sqrt[12]{(x^4)^{\frac{1}{3}}}$ (c) $(\sqrt{x^{\frac{2}{33}}})$ (d) $x^{\frac{2}{4}} \times x^{\frac{6}{4}}$	[1]
6.	The rationalizing factor of $\frac{3}{\sqrt[4]{32}}$ is (a) $\sqrt[4]{8}$ (b) $\sqrt[4]{32}$ (c) $\sqrt[4]{16}$ (d) none of these	[1]
7.	In figure, $AB \parallel ED$, the value of x is: 	[1]
8.	An angle is 18° less than its complementary angle. The measure of this angle is (a) 36° (b) 48° (c) 83° (d) 81°	[1]
9.	In the figure, the value of $\angle AOD$ is 	[1]
10.	On plotting $P(-3, 8)$, $Q(7, -5)$, $R(-3, -8)$ and $T(-7, 9)$ are plotted on the graph paper, then point(s) in the third quadrant are: (a) P and T	[1]

	<p>(b) Q and R (c) Only R (d) P and R</p>	
11.	<p>In the figure $AD \perp CD$ and $CB \perp CD$. If $AQ = BP$ and $DP = CQ$, then $\angle DAQ =$</p>  <p>(a) $\angle BPC$ (b) $\angle PCB$ (c) $\angle BPD$ (d) $\angle CBP$</p>	[1]
12.	<p>The equation $y = 5$, in two variables, can be written as:</p> <p>a. $1 \cdot x + 1 \cdot y = 5$ b. $0 \cdot x + 0 \cdot y = 5$ c. $1 \cdot x + 0 \cdot y = 5$ d. $0 \cdot x + 1 \cdot y = 5$</p>	[1]
13.	<p>ABCD is a square X and Y are points on sides AD and BC respectively such that $AY = BX$ then BY is equal to</p>  <p>(a) AX (b) CY (c) DX (d) None of these</p>	[1]

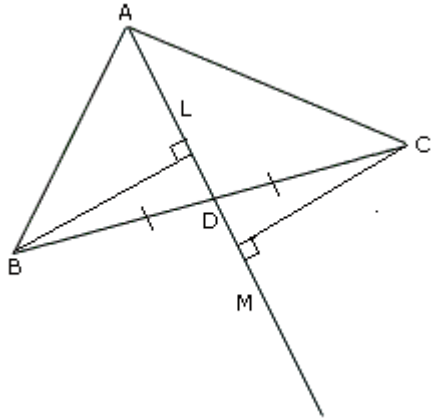
14.	<p>In the figure, $l \parallel m$ and $p \parallel n$. If $\angle 1 = 75^\circ$, prove that $\angle 2 = \angle 1 + \frac{1}{3}$ (of an angle x) then x must be equal to</p>  <p>(a) 105° (b) 150° (c) 90° (d) None of these</p>	[1]
15.	<p>I am four times as old as my son whose age is x years. The linear equation in two variables to represent this statement is</p> <p>(a) $4x=y$ (b) $4x>y$ (c) $4x < y$ (d) none of these</p>	[1]
16.	<p>Three coins were tossed 30 times simultaneously. Each time the number of heads occurring was noted down as follows: 0 ,1, 2, 2 ,1, 2 ,3, 1, 3, 0, 1, 3, 1, 1, 2, 2, 0, 1, 2, 1, 3, 0, 0,1,1,2, 3, 2, 2, 0 then the frequency of 2 is</p> <p>(a) 10 (b) 9 (c) 6 (d) 5</p>	[1]
17.	<p>To analyze the election results, the data is collected from a newspapers. The data thus collected is known as</p> <p>(a) secondary data (b) raw data (c) grouped data (d) primary data</p>	[1]
18.	<p>A triangular park ABC has sides 120m, 80m and 50m (see Fig. 12.7). A gardener Dhania has to put a fence all around it and also plant grass inside. How much area does she need to plant? Find the cost of fencing it with barbed wire at the rate of Rs.20 per metre leaving a space 3m wide for a gate on one side.</p>	[1]

	(a) Rs. 4490 (b) Rs. 4904 (c) Rs.4940 (d) None of these	
19.	In the given figure $\angle ADB = \angle BAC = 90^\circ$, $AD = 3$ cm, $BD = 4$ cm and $BC = 13$ cm, the area of the shaded portion is 	[1]
	(a) 30 cm^2 (b) 24 cm^2 (c) 6 cm^2 (d) None of these	
20.	Sides of a triangle are in the ratio of $12 : 17 : 25$ and its perimeter is 1080 cm. Find its area. (a) 36000 cm^2 (b) 3600 cm^2 (c) 36000000 cm^2 (d) None of these	[1]

SECTION B

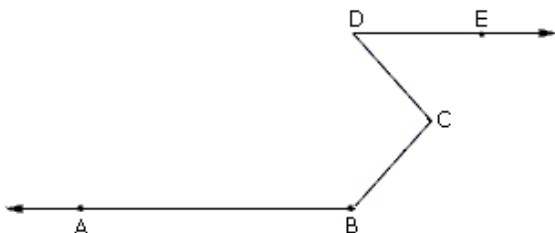
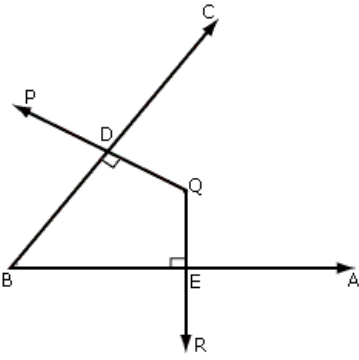
(Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted)

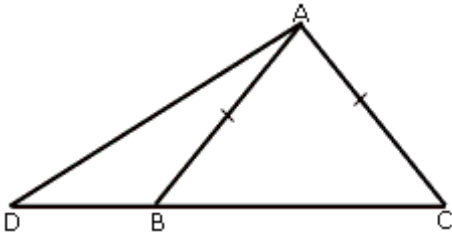
21	Every rational number is: . a. Whole number b. Natural number c. Integer d. Real number	
22	Which of the following is an irrational numbers . (a) 0.251 (b) $\sqrt{49}$ (c) 4.215215 ... (d) 5.120120012 ...	
23	In the given figure, AD is a median. Lines BL and CM are drawn perpendicular to AD. Prove that BL.	

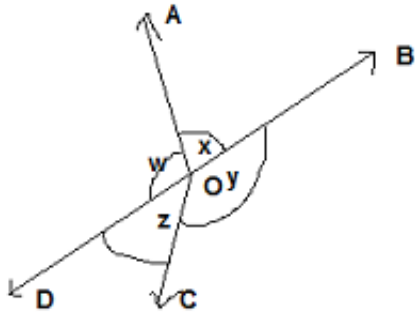


- (a) AL (b) LM (c) CM (d) CD

- 24 The side QR of ΔPQR is produced to a point S. If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T, then prove that $\angle QTR =$.
- (a) $\frac{2}{3}\angle QPR$ (b) $\frac{3}{4}\angle QPR$ (c) $\frac{1}{2}\angle QPR$ (d) None of these
- 25 In an examination, ten students scored the following marks: 60, 58, 90, 51, 47, 81, 70, 95, 87, 99. The range of this data is
- (a) 51 (b) 52 (c) 60 (d) 81
- 26 ΔABC is an isosceles triangle in which $AB = AC$. Side BA is produced to D such that $AD = AB$ then $\angle BCD$ is a.
- (a) acute angle (b) obtuse angle (c) straight angle (d) right angle
- 27 A grouped frequency distribution table with classes of equal sizes using 63-72 (72 included) as one of the class is constructed for the following data:
30, 32, 45, 54, 74, 78, 108, 112, 66, 76, 88, 40, 14, 20, 15, 35, 44, 66, 75, 84, 95, 96, 102, 110, 88, 74, 112, 14, 34, 44.
The number of classes in the distribution will be:
- (a) 9
(b) 10
(c) 11
(d) 12

28	<p>In a frequency distribution, 34-38,41-45, and so on. The lower class limit of first class interval when it expressed as a continuous distribution is</p> <p>(a) 39.5 (b) 40.5 (c) 38.5 (d) none of these</p>	
29	<p>The class size in 5 - 5.02</p> <p>(a) 5.01 (b) 0.02 (c) 5 (d) None of these</p>	
30	<p>If $x = 3 - 2\sqrt{2}$, find $x^2 + \frac{1}{x^2}$</p> <p>(a) $6+4\sqrt{2}$ (b) $6 - 4\sqrt{2}$ (c) 6 (d) None of these</p>	
31	<p>In the figure, $AB \parallel DE$. If $\angle ABC + \angle BCD = x + \angle CDE$, then the value of x is</p>  <p>(a) 90° (b) 180° (c) 270° (d) None of these</p>	
32	<p>$\angle X = 62^{\circ}$, $\angle XYZ = 54^{\circ}$. If YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of ΔXYZ, find $\angle YOZ$.</p> <p>(a) 116° (b) 121° (c) 59° (d) None of these</p>	
33	<p>In figure 2, $\angle DBE + \angle EQD$ is</p>  <p>Figure 2</p>	

	(a) 190°	(b) 200°	(c) 160°	(d) 180°
34	<p>Students of a school staged a rally for cleanliness campaign. They walked through the lanes in two groups. One group walked through the lanes AB, BC and CA; while the other through AC, CD and DA. Then they cleaned the area enclosed within their lanes. If AB = 9 m, BC = 40 m, CD = 15 m, DA = 28 m and $\angle B = 90^\circ$, which group cleaned more area and by how much? Find the total area cleaned by the students (neglecting the width of the lanes).</p> <p>(a) 603 m² (b) 306 m² (c) 630 m² (d) None of these</p>			
35	<p>The area of a regular hexagon is $600\sqrt{3}$ cm². Determine its perimeter.</p> <p>(a) 80 cm (b) 90 cm (c) 60 cm (d) None of these</p>			
36	<p>In an isosceles triangle ABC with AB = AC, D and E are points on BC such that BE = CD, then BD equals to</p> <p>(a) EC (b) ED (c) AD (d) None of these</p>			
37	<p>In an isosceles triangle ABC, AB = AC and CB is produced to D. then AD is greater than .</p>  <p>(a) BD (b) CD (c) AC (d) None of these</p>			
38	<p>The graph of the line $x - 2y = 3$, find the coordinates of the points when $x = -5$</p> <p>(a) 4 (b) 1 (c) -4 (d) None of these</p>			
39	<p>The sum of a two digit number and the number obtained by reversing the order of its digits is 121. The linear equation of two variables to represent this statement is</p> <p>(a) $x=11-y$ (b) $10x +y=121$ (c) $121-10x= -y$ (d) None of these</p>			
40	<p>In Fig. 6.16, if $x + w = y + z$, then OB and OD are.</p>			



- (a) Parallel (b) intersecting (c) can't say (d) None of these

SECTION C

Case study based questions: Section C consists of 10 questions of 1 mark each. Any 8 questions are to be attempted. Q41-Q45 are based on Case Study -1.

Case Study -1

Read the following passage and answer any four out of five.

The below pictures are few artificial examples of triangular shaped market building for better distribution.

Answer the following questions as per the direction.



41. In the given figure, name the two triangles which are congruent to each other.

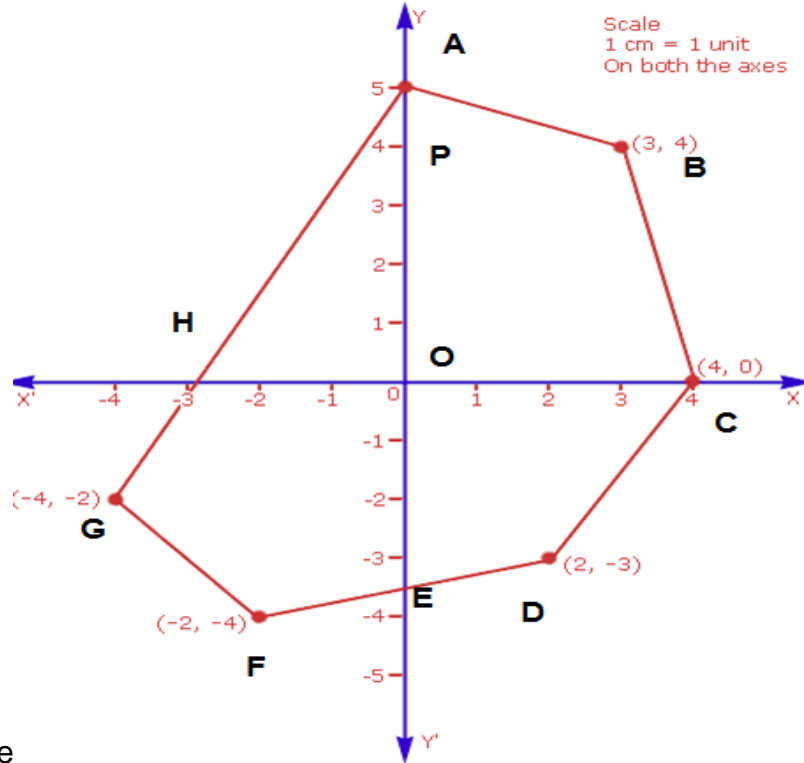
[1]

	(a) $\Delta HIG \cong \Delta DEF$ (b) $\Delta HIG \cong \Delta ABC$ (c) $\Delta HIG \cong \Delta CBA$ (d) None of these	
42.	The side AB of ΔABC equal to (a) GI (b) DE (c) HG (d) HI	[1]
43.	$\angle G$ is equal to the angle (a) $\angle C$ (b) $\angle E$ (c) $\angle A$ (d) $\angle D$	[1]
44.	If the area of ΔABC is 120 m^2 then, it is equals to (a) area of ΔDEF (b) area of $\Delta GCAH$ (c) area of ΔHIG (d) None of these	[1]
45.	If sides of triangle HIG are in the ratio of $HI:GI:GH = 3:4:2$, then the length of BC, if the perimeter of ΔDEF 540 m triangle is (a) 120m (b) 240m (c) 180m (d) None of these	[1]

Case Study -2

Q46-Q50 are based on Case Study -2

In the following figure, points are plotted on a graph paper in successive order $(-4, -2)$, $(-2, -4)$, $(2, -3)$, $(4, 0)$, $(3, 4)$ and $(0, 5)$ to obtain a polygon. Answer the following questions



as per the figure

46.	Name the figure formed by joining the points in an order is (a) hexagon (b) Heptagon (c) Octagon (d) None of these	[1]
47.	The co-ordinate of point P is (a) $(0,4)$ (b) $(4,0)$ (c) $(4,4)$ (d) None of these	[1]
48.	The special name of the figure formed by joining B,P,O and C is (a) quadrilateral (b) trapezium (c) parallelogram (d) None of these	[1]
49.	Area of the triangle formed by OAH is (a) -7.5 cm^2 (b) 15 cm^2 (c) 7.5 cm^2 (d) None of these	[1]
50.	If a mirror is placed along the Y axis, then the co-ordinate of the reflection of the point D is (a) $(-2,-3)$ (b) $(-2,3)$ (c) $(2,3)$ (d) None of these	[1]



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