

ROLL
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A



INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2022
MATHEMATICS 041



CLASS : IX
DATE: 17-09-2022

TIME ALLOTTED : 3 HRS.
MAXIMUM MARKS: 80

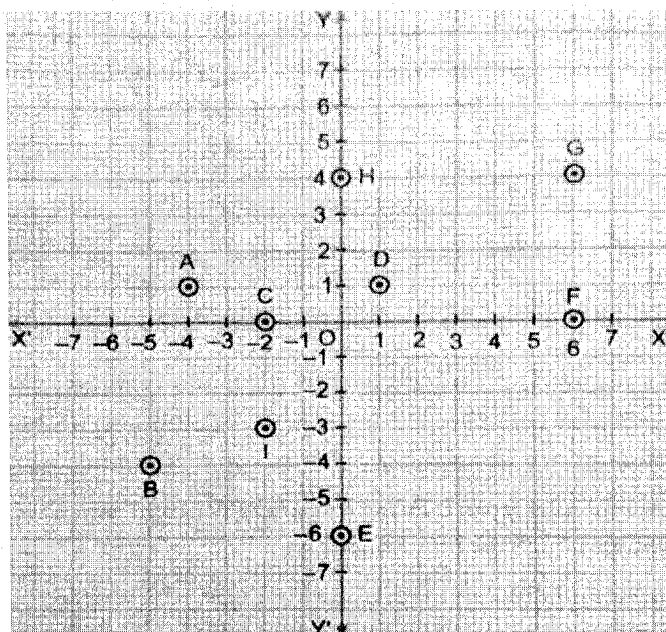
GENERAL INSTRUCTIONS:

- *All Questions must be attempted, however there are internal choices for 2 marks, 3 marks and 5 marks questions.
- *Section A has 20 Questions of 1 mark each.
- *Section B has 8 Questions of 2 marks each.
- *Section C has 4 Questions of 3 marks each.
- *Section D has 3 case-based Questions of 4 marks each.
- *Section E has 4 Questions of 5 marks each.
- *Write your paper neatly without the use of white ink.

1 MARK QUESTIONS

1. Every point on a number line represents 1M
 - (a) a unique real number
 - (b) a natural number
 - (c) a rational number
 - (d) an irrational number
2. If the area of an equilateral triangle is $16\sqrt{3} \text{ cm}^2$, then the perimeter of the triangle is 1M
 - (a) 48 cm
 - (b) 24 cm
 - (c) 12 cm
 - (d) 36 cm
3. If (4, 19) is a solution of the equation $y = px + 3$, then the value of p is 1M
 - (a) $\frac{1}{19}$
 - (b) 4
 - (c) $\frac{11}{2}$
 - (d) 6
4. If $\triangle ABC \cong \triangle PQR$, then which of the following is not true? 1M
 - (a) $AC = PR$
 - (b) $AB = PQ$
 - (c) $QR = BC$
 - (d) $BC = PQ$
5. Points (0, 3) and (0, -7) lie 1M

19. From the given figure, write the coordinates of the point B.



1M

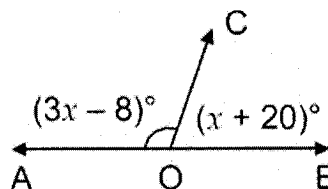
20. Use the graph given in Q19 to write the point identified by the coordinates $(0, -6)$.

1M

2 MARKS QUESTIONS

21. If in the given figure, OA and OB are opposite rays, then find the value of x .

2M



22. If $(p, 2p + 1)$ is the solution of the linear equation $4x + 3y = 23$. Find the value of 'p'.

2M

OR

Give equation of two lines on same plane which are intersecting at the point $(2, 3)$.

23. If $x=3$ and $y=2$, then find the value of $2^y + x^2$

2M

24. For two points $A(-3, 7)$ and $B(-7, 5)$ find the value of (Ordinate of A – Abscissa of B).

2M

OR

In which quadrant will the points $(3, -5)$ and $(-3, -1)$ lie?

25. If $\sqrt{10} = 3.162$, then find the value of $\frac{1}{\sqrt{10}}$

2M

26. Express $\frac{x}{7} = 1$ as an equation in 2 variables in standard form and write the values of a , b & c .

2M

27. Find four rational numbers between 3 and 4.

2M

28. An isosceles right triangle has area 8 cm^2 . Find the length of its hypotenuse.

2M

OR

If the perimeter and base of an isosceles triangle are 14 cm and 6 cm respectively, then find the area of the triangle.

3 MARKS QUESTIONS

29. If the difference between the semi-perimeter 's' and the sides 'a', 'b' and 'c' of $\triangle ABC$ are 8 cm, 7 cm and 6 cm respectively, then find $\text{ar}(\triangle ABC)$.

3M

OR

The perimeter of a triangular field is 72 m and its sides are in the ratio 3:4:5. Find the area of the triangle.

30. Prove that angles opposite to equal sides of an isosceles triangle are equal.

3M

(d) 20

(v) What is the standard form of linear equation $y = 4$ (in 2 variables)?

(a) $0x + 0y + 4 = 0$

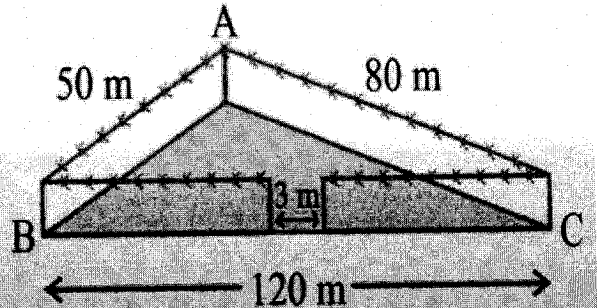
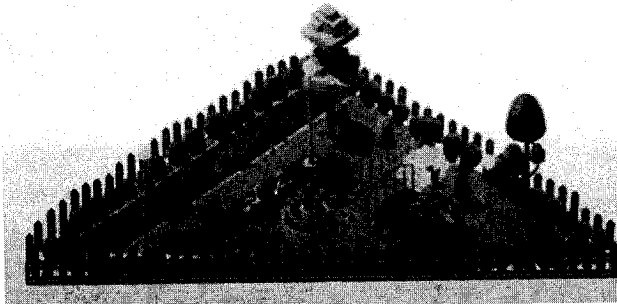
(b) $1x + 0y - 4 = 0$

(c) $0x + 1y - 4 = 0$

(d) $0x + 1y + 4 = 0$

34. A triangular park ABC has sides 120m, 80m and 50m. A gardener Dhania has to put a fence all around it by leaving a space 3m wide for a gate on one side and also plant grass inside. His son enjoys cycling every day in the park.

4M



Now answer the following questions.

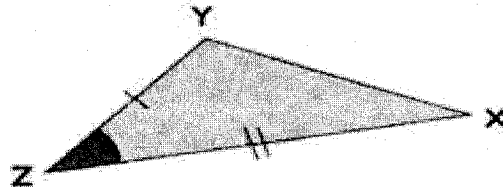
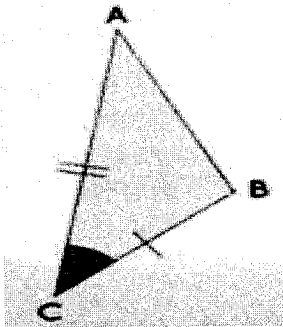
(i) Calculate the area of the park.

(ii) Find the cost of fencing the park at the rate Rs30 per meter leaving a space 3m wide for a gate on one side.

35. Two figures are congruent if they coincide exactly when one placed over the other. Two triangles are congruent if all 6 corresponding parts of them are equal. SAS, SSS, ASA, RHS, AAS are the congruence rules by which we can decide whether the triangles are congruent or not.

4M

Observe the following figures and **answer any 4 MCQ of the following questions:**



(i) What does it mean for two objects to be congruent?

- a) One is larger than the other.
- b) They are of different shapes.
- c) Their sides have proportional length.
- d) They have exact same size and same shape.

(ii) The two triangles ABC and XYZ are congruent in symbolic form we write it as:

- a) $\triangle ABC \cong \triangle XYZ$
- b) $\triangle ABC \cong \triangle XZY$
- c) $\triangle CBA \cong \triangle XYZ$
- d) $\triangle BAC \cong \triangle ZXY$

(iii) The two triangles ABC and XYZ are congruent by:

- a) ASA congruence rule
- b) SAS congruence rule
- c) SSS congruence rule
- d) RHS congruence rule

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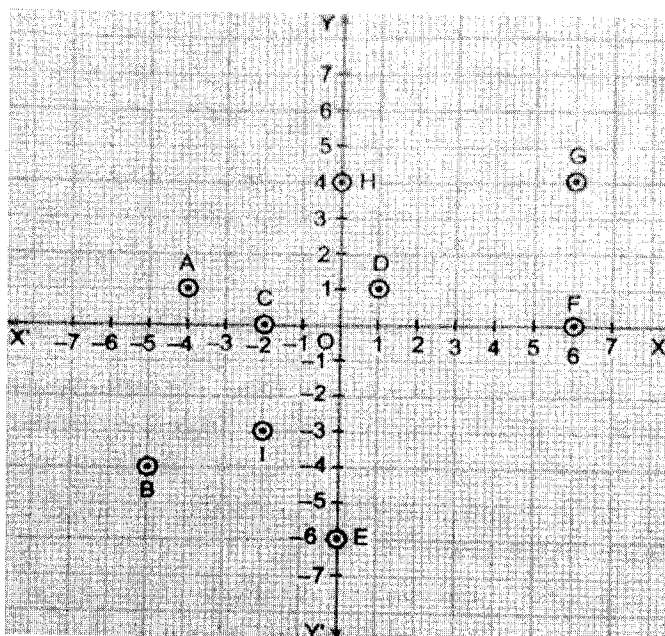
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- *Write your paper neatly without the use of white ink.

1 MARK QUESTIONS

1. Find the value of 'k' if $x = 2, y = 1$ is a solution of the equation $k + 3y = 2x$. 1M
 (a) 1
 (b) -1
 (c) -4
 (d) 6
2. If $\triangle ABC \cong \triangle PQR$, then which of the following is not true? 1M
 (a) $AC = PR$
 (b) $AB = PQ$
 (c) $QR = BC$
 (d) $BC = PQ$
3. A rational number between 2 and 3 is 1M
 (a) 2.030030003...
 (b) 2.99
 (c) 2
 (d) $3 - \sqrt{2}$
4. The measure of an angle which is 24° more than its complement is 1M
 (a) 66°
 (b) 57°
 (c) 33°
 (d) 114°
5. If the area of an equilateral triangle is $16\sqrt{3} \text{ cm}^2$, then the perimeter of the triangle is 1M

19. From the given figure, write the coordinates of the point D.



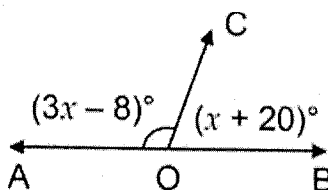
1M

20. Use the graph given in Q19 to write the point identified by the coordinates (6,0)

1M

2 MARKS QUESTIONS

21. If $\sqrt{10} = 3.162$, then find the value of $\frac{1}{\sqrt{10}}$ 2M
22. Find four rational numbers between 2 and 3. 2M
23. Express $\frac{x}{7} = 1$ as an equation in 2 variables in standard form and write the values of a, b & c. 2M
24. If in the given figure, OA and OB are opposite rays, then find the value of x. 2M



25. An isosceles right triangle has area 8 cm^2 . Find the length of its hypotenuse. 2M

OR

If the perimeter and base of an isosceles triangle are 14 cm and 6 cm respectively, then find the area of the triangle.

26. If $x=3$ and $y=2$, then find the value of $2^y + x^2$ 2M
27. If the two points are $A(-3,7)$ and $B(-5,5)$, then find (Ordinate of A – Abscissa of B)? 2M

OR

In which quadrant will these points $(-3,5)$ and $(-3,-10)$ lie?

28. If $(p, 2p + 1)$ is the solution of the linear equation $4x + 3y = 23$. Find the value of 'p'. 2M

OR

Give equation of two lines on same plane which are intersecting at the point (2,3).

3 MARKS QUESTIONS

29. The two complementary angles are in the ratio 1 : 5. Find the measures of the angles. 3M

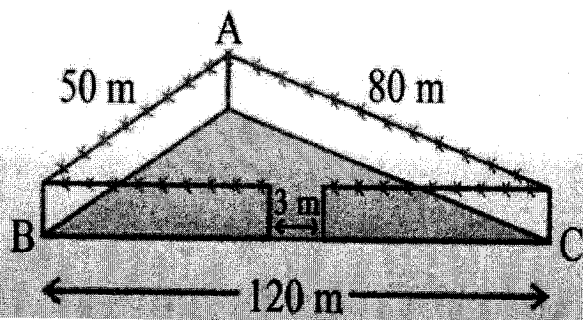
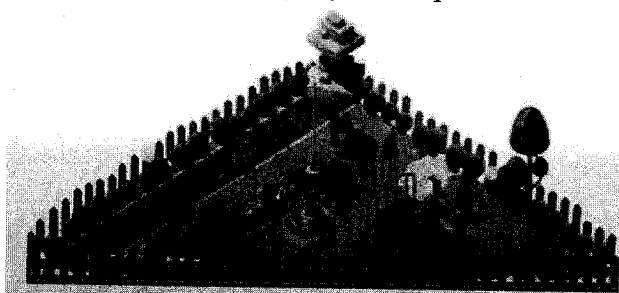
OR

In quadrilateral ACBD, $AC=AD$ and AB bisects Angle A. show that $\triangle ABC \cong \triangle ABD$. What can you say about BC and BD?

30. Represent $\sqrt{2}$ on the number line. 3M

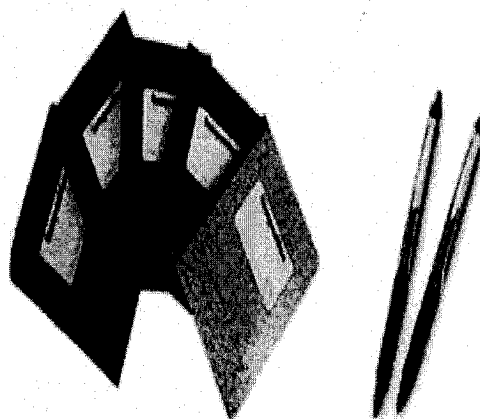
34. A triangular park ABC has sides 120m, 80m and 50m. A gardener Dhania has to put a fence all around it by leaving a space 3m wide for a gate on one side and also plant grass inside. His son is enjoying cycling everyday in the park.

4M



Now answer the following questions.

- (i) Calculate the area of the park.
 - (ii) Find the cost of fencing the park at the rate Rs30 per meter leaving a space 3m wide for a gate on one side.
35. Sanjay bought 5 notebooks and 2 pens for Rs120. He told to guess the cost of each notebook and pen to his friends Mohan and Anil. Sanjay has given the clue that both the costs are positive integers and divisible by 5 such that the cost of a notebook is greater than that of a pen. Now Mohan and Anil tried to guess. Mohan said that the price of each notebook could be Rs 18, Then 5 notebooks would costs Rs 90, the 2 pens would cost Rs 30 and each pen could be of Rs 15. Anil felt that Rs 18 for one notebook is too little. It should be at least Rs 20. Then the price of each pen would also be Rs 10. Now answer any 4 of the following questions.
- (i) Form the linear equation in 2 variables from above situation, taking the cost of a note book as 'x' and that of a pen is 'y'.
 - (a) $2x + 5y = 120$
 - (b) $5x + y = 120$
 - (c) $x + y = 120$
 - (d) $5x + 2y = 120$
 - (ii) What is the solution of the equation formed in Q 35(i)?
 - (a) $x = 10, y = 20$
 - (b) $x = 20, y = 10$
 - (c) $x = 15, y = 15$
 - (d) $x = 5, y = 25$
 - (iii) If the cost of a note book is Rs.25 and that of a pen is Rs.10, then the total amount is
 - (a) 120
 - (b) 95
 - (c) 145
 - (d) 125
 - (iv) If the cost of a notebook is 3 more than the cost of a pen, then what is the cost of a pen when total amount is Rs.120?
 - (a) 15
 - (b) 10



4M

9/15/19

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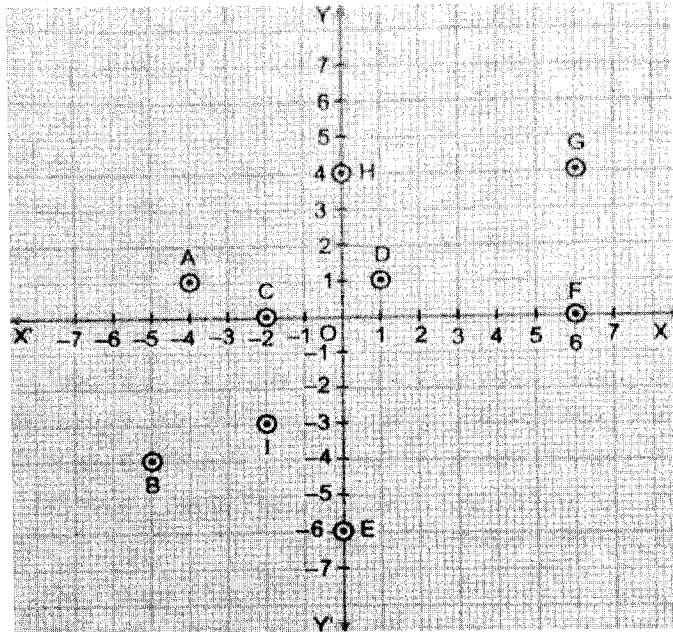
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1 MARK QUESTIONS

1. The measure of an angle which is 24° more than its complement is 1M
 (a) 33°
 (b) 57°
 (c) 66°
 (d) 114°
2. $(3+\sqrt{3})(3-\sqrt{3})$ on simplification becomes equal to 1M
 (a) 18
 (b) $2\sqrt{3}$
 (c) 6
 (d) 9
3. If the area of an equilateral triangle is $16\sqrt{3} \text{ cm}^2$, then the perimeter of the triangle is 1M
 (a) 48 cm
 (b) 36 cm
 (c) 24 cm
 (d) 12 cm
4. If (4, 19) is a solution of the equation $y = px + 7$, then the value of p is 1M
 (a) $\frac{1}{19}$
 (b) 4
 (c) $\frac{13}{2}$
 (d) 3
5. A rational number between 2 and 3 is 1M
 (a) 2.030030003...

19. From the given figure, write the coordinates of the point A.

1M



20. Use the graph given in Q19 to write the point identified by the coordinates (0,4) .

1M

2 MARKS QUESTIONS

21. For the two points A(-3,5) and B(-5,5), find the value of (Ordinate of A – Abscissa of B)?

2M

OR

In which quadrant will these points (-3,4) and (3, -10) lie?

22. If $x=3$ and $y=2$, then find the value of $2^y + x^2$

2M

23. If $\sqrt{10} = 3.162$, then find the value of $\frac{1}{\sqrt{10}}$

2M

24. If $(p, 2p + 1)$ is the solution of the linear equation $4x + 3y = 23$. Find the value of 'p'.

2M

OR

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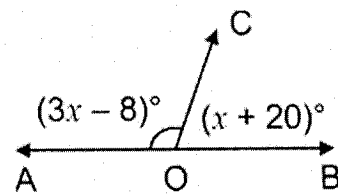
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If the perimeter and base of an isosceles triangle are 14 cm and 6 cm respectively, then find the area of the triangle.

27. If in the given figure, OA and OB are opposite rays, then find the value of x.

2M



28. Express $\frac{x}{7} = 1$ as an equation in 2 variables in standard form and write the values of a, b & c.

2M

3 MARKS QUESTIONS

29. Prove that angles opposite to equal sides of an isosceles triangle are equal.

3M

OR

Now **answer any 4 of the following questions.**

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(a) $2x + 5y = 120$

(b) $5x + y = 120$

(c) $x + y = 120$

(d) $5x + 2y = 120$

(ii) Which of the following is the solution of the equation formed in Q 34(i)?

(a) $x = 10, y = 20$

(b) $x = 20, y = 10$

(c) $x = 15, y = 15$

(d) $x = 5, y = 25$

(iii) If the cost of a note book is Rs.25 and that of a pen is Rs.10, then the total amount is

(a) 120

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(iv) If the cost of a notebook is 3 more than the cost of a pen, then what is the cost of a pen when total amount is Rs.120?

(a) 15

(b) 10

(c) 18

(d) 20

(v) What is the standard form of linear equation $x = 4$ (in 2 variables)?

(a) $0x + 0y + 4 = 0$

(b) $1x + 0y - 4 = 0$

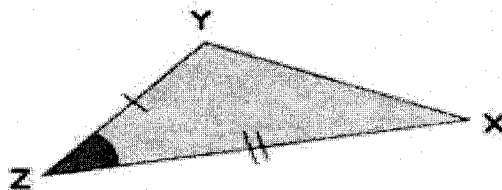
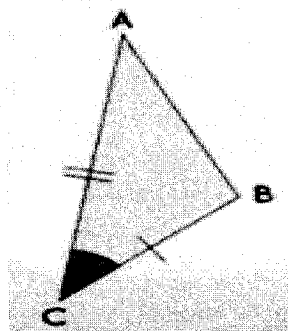
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