

anahat Chugh IX-A 8

CARMEL CONVENT SCHOOL (CHANDIGARH)
FIRST TERM EXAM (2025-26)

Class- IX

Date: 18.09.25

Subject- Mathematics

Maximum Marks: 80

Time Allowed: 3Hrs.

General Instructions:

1. This Question Paper has 5 Sections A-E
2. Section A has 20 MCQs carrying 1 mark each
3. Section B has 5 questions carrying 02 marks each.
4. Section C has 6 questions carrying 03 marks each.
5. Section D has 4 question carrying 5 marks each
6. Section E has 3 questions carrying 4 marks each
7. All Questions are compulsory

Section A

Q1 Rational form of 17.666666... is

- a) $58/3$ ~~b) $159/9$~~ c) $44/9$ d) $58/5$

Q2 Factor of $x^3 - 1$ is

- a) $x - 1$ b) $x^2 + x + 1$ ~~c) both a and b~~ d) $x^2 + x$ $x^3 - 1^3 = (x-1)(x^2 + x + 1)$

Q3 Plane where the two coordinate axis meet is called

- a) coordinate plane b) ordinate plane
~~c) cartesian plane~~ d) original plane

Q4 An equation of the form $ax + by + c = 0$ where a, b and c are non zero numbers represents

- a) a circle b) a triangle ~~c) a straight line~~ d) quadrilateral

Q5 If $x = -3$ and $y = 2$ is the solution of the equation $3x - 2y = K$ then the value of k is

- a) 5 b) -5 c) 13 ~~d) -13~~

Q6 In right angled triangle the square of hypotenuse = twice the product of the other two sides. The other two angles of this triangle are

- ~~a) $45^\circ, 45^\circ$~~ b) $50^\circ, 40^\circ$ c) $75^\circ, 15^\circ$ d) $30^\circ, 60^\circ$

Q7 In group frequency distribution three class intervals are 1-10, 11-20, 21-30 then class width is

- a) 11 b) 5.5 c) 10 ~~d) 9~~

Q8 Two supplementary angles are in the ratio 13:5. The two angles are

- a) 40,140 ~~b) 130,50~~ c) 65,25 d) 75,15

Q9 $\frac{\sqrt{28}}{\sqrt{343}}$ is a

- a) natural number b) rational number ~~c) irrational number~~ d) whole number

Q10 $2y^2 - 5\sqrt{y} + 3$ is a

- a) quadratic polynomial b) linear polynomial
c) cubic polynomial d) none of the above

Q11 If the diagonals of the rectangle ABCD intersect at O and $\angle COD = 78^\circ$, then $\angle OAB$ is:

- a) 35° ~~b) 51°~~ c) 70° d) 110°

Q12 If coordinates of P (-5,3) and Q (8, -9) then abscissa of Q – ordinate of P is

- a) 13 b) 14 ~~c) 5~~ d) -12

Q13 Point (-4, -3) lies in

- a) first quadrant b) second quadrant ~~c) third quadrant~~ d) fourth quadrant

Q14 Area of equilateral triangle with side 16cm is

- a) $32\sqrt{2} \text{ cm}^2$ b) $28\sqrt{3} \text{ cm}^2$ ~~c) $64\sqrt{3} \text{ cm}^2$~~ d) $64\sqrt{2} \text{ cm}^2$

Q15 Upper limit of class interval 20-30 is

- a) 20 ~~b) 30~~ c) 25 d) 10

Q16 The value of the polynomial $p(x) = x^2 - 3x + 2$ at $x = 3$

- a) 5 ~~b) 2~~ c) -3 d) -2

Q17 Solution of $\sqrt[3]{343} + \sqrt{81} + (2^2)^2$

- a) 25 ~~b) 32~~ c) 65 d) 49

Q18. Class mark for class interval 55-65 is

- a) 50 ~~b) 60~~ c) 58 d) 62

In questions 19 & 20 statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

Q19 Assertion: Herons formula is only applicable for right angled triangle

①

①

$$\begin{aligned} &3^2 - 3(3) + 2 \\ &9 - 9 + 2 \\ &+ 2 \end{aligned}$$

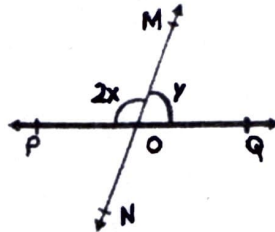
Reasoning: For right triangle with sides 3cm 4cm and 5cm semi perimeter is 6 and area is also 6cm^2

Q20 Assertion: $\triangle ABC$, and $\triangle DBC$ are two isosceles triangles on the same base BC then $\angle ABD = \angle ACD$

Reasoning: The angles opposite to equal sides of triangle are equal

Section B

Q21. Find x when $y = 40^\circ$



Q22. Find value of $\frac{3\sqrt{2}}{2\sqrt{3}}$, given value of $\sqrt{6} = 2.448$

Q23. If $x+1$ is a factor of $2x^2 + kx + \sqrt{5}$ find value of k

Q24. Solve using identity: $(104)^2$

Q25. Find area of triangle whose two sides are 8cm and 11 cm and perimeter is 32cm.

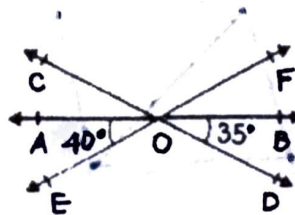
Section C

Q26 Solve the following:

a) $(y - \sqrt{3}x + 2)^2$

b) Given $(x + \frac{1}{x}) = 7$, find value of $x^3 + (\frac{1}{x})^3$

Q27 In the following figure $\angle AOE = 40^\circ$ and $\angle BOD = 35^\circ$. Find $\angle COF$ and $\angle AOC$



Q28. Perimeter of triangular field is 420 m and its sides are in the ratio 6:7:8 Find area of triangular field.

Q29. Draw histogram (ON GRAPH) for following data:

Class Interval	Frequency
10-20	5
20-30	12
30-50	20
50-100	8

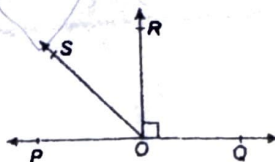
$$\left(x + \frac{1}{x}\right)^3 = (7)^3$$

Q30. Draw square root spiral for $\sqrt{6}$

Q31 Find value of a and b: $\frac{2}{\sqrt{3} + \sqrt{5}} = a\sqrt{3} + b\sqrt{5}$

Section D

Q32 POQ is a line. OR is perpendicular to PQ. OS is another line between OR and OP. Prove that $\angle ROS = \frac{1}{2} [\angle QOS - \angle POS]$



Q33. Factorise:

a) $16x^2 + 4y^2 + 9z^2 - 16xy - 12yz + 24xz$

b) $1 - 64a^3 - 12a + 48a^2$

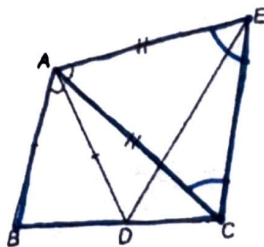
Q34a) Find all factors of cubic polynomial: $x^3 - 3x^2 - 4x + 12$ $(x - 3)(x - 2)(x + 2)$

b) Without calculating cubes, find the value of $(8)^3 + (-5)^3 + (-3)^3$ using identity

Q35 In the given figure, $AB = AD$ and $AC = AE$, prove that $\triangle ACE \cong \triangle ABC$

$\angle BAD = \angle EAC$

$\triangle ABC \cong \triangle AEC$



Section E

Q36. A town is in the shape of plane having x axis and y axis. It has the town square at origin. Following kites are flying at different spots in the sky and submarines are under the ground

A is at $(5, 3)$ B is at $(-4, 3)$ C is at $(-4, -2)$ D is at $(5, -2)$

Questions:

- In which quadrant are submarines located?
- In which quadrant are kites located?

c) which kites or submarines are flying/floating exactly above or below each other?

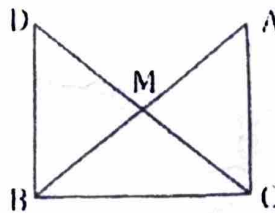
Q37. At a fair, an entry ticket for each adult costs ₹60 and for each child costs ₹40. On Saturday, the total collection from tickets was ₹2,400.



- (a) Write the equation in standard form for sales on Saturday, where x = number of tickets for adults, y = number of tickets for children who visited the fair.
- (b) Compare the above equation with standard form of equation. Find value of a , b and c
- (c) Check if $(30, 15)$ is a solution of the above question

$$40y + 60x = 2400$$

Q38. Farmer wants to grow wheat and onion in equal portions of fields and wants to check if area of field AMC is equal to area of DMB . A field is in the shape of right angled triangle ABC , right angled at C . M is midpoint of AB and produced to point D such that $DM = CM$. Point D is joined to point B and new smaller triangular fields are formed



Q1. By which congruency rule will it be proved? Explain

Q2. Is DB perpendicular to BC ? Explain.

Q3. Is length of $CM = \frac{1}{2} AB$? If yes, prove it. If no, explain it.

The End