BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

ANNUAL EXAMINATIO- 2026

MATHEMATICS (041)

Class : IX
Date :20-02-2026

MARKING SCHEME (SET- II)

Duration: **3 Hrs**
Max. Marks: **80**

SECTION A

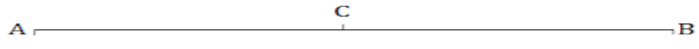
Each question carries 1 mark. (mcq)

1. None of these [D]
2. 72 [B]
3. 0 [A]
4. Third quadrant. [C]
5. 8 [D]
6. Theorems [C]
7. 30^0 [B]
8. SSA [C]
9. BD = CD [A]
10. Square [C]
11. 80^0 [A]
12. 65^0 [B]
13. $900\sqrt{3}$ cm ^{2} [B]
14. $8\sqrt{30}$ [B]
15. 2464 [C]
16. 1 : 4 [C]
17. 8 [B]
18. 110^0 [B]
19. [D]
20. [D]

SECTION B

21. $x^2 + 10x + 21$. = $x^2 + 7x + 3x + 21$ 1
= x (x + 7) +3 (x + 7) ½
= (x + 7) (x +3) ½

22. $ax + 3 = y$
a x 4 + 3 = 19 ½
a x 4 = 19 -3 ½
a $= \frac{16}{4}$ ½
= 4 ½

23. 

½

Given that, AC = BC
Now, adding AC both sides. ½
AC+AC = BC+AC ½
2AC = BC+AC ½
⇒ AC = (½) AB. ½

24 : $\angle BAE = \angle AED$ Alternate angles ½

$\angle AED = 35^0$ ½

$\angle DCE = 180^0 - (53 + 35)$ ½

$= 92^0$ ½

OR

$5y + 3y + 2y = 180^o$ 1

$10y = 180^0$ ½

$y = 18^0$ ½

25. Surface area of Sphere = $4 \pi r^2$ ½

$154 = 4 \times 22/7 \times r^2$ ½

$\frac{7}{2} = r$ 1

OR

CSA of Cone = $3.14 \times 5.25 \times 10$ ½

$= 3.14 \times 52.5$ ½

$= 164.85 \text{ cm}^2$ 1

SECTION C

26.: $\frac{4}{\sqrt{11}-\sqrt{7}} \times \frac{\sqrt{11}+\sqrt{7}}{\sqrt{11}+\sqrt{7}} = \frac{4(\sqrt{11}+\sqrt{7})}{(\sqrt{11})^2-(\sqrt{7})^2}$ 1

$= \frac{4(\sqrt{11}+\sqrt{7})}{121-49}$ ½

$= \frac{4(\sqrt{11}+\sqrt{7})}{72}$ ½

ii) $(3+\sqrt{3})^2 = (3)^2 + 2 \times 3 \times \sqrt{3} + (\sqrt{3})^2$ ½

$= 9 + 6\sqrt{3} + 3$ ½

$= 12 + 6\sqrt{3}$

27. $x + 2y = 7$ ½

$x = 6 - 2y$ 2 ½

x	6	4	2	0	-2	8
y	0	1	2	3	4	-1

OR

If $x = 3k + 2$ and $y = 2k-1$ is a solution of the equation $4x - 3y + 1 = 0$ Find the value of k

$4(3k + 2) - 3(2k-1) + 1 = 0$

$12k + 8 - 6k + 3 + 1 = 0$ 1

$6k + 12 = 0$ 1

$k = -2$ 1

28. i) Expand using identities : $(2a - 3b)^3$

$= (2a)^3 + (-3b)^3 - 3(2a)^2(-3b) + 3 \, 2a(-3b)^2$ 1

$= 8a^3 + 27b^3 - 36a^2b + 12ab^2$ ½

ii) $(2a)^3 - (b)^3 - 3(2a)^2 b + 3 \, 2a(b)^2$ 1

$(2a-b)^3$ ½

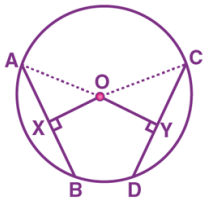
29. For Correct Graph - 2 ½

Triangle ½

30. Given: A circle with centre O. AB = CD

To Prove: OX = OY

Proof: As the perpendicular from the centre of the circle to a chord, bisects the chord, we can write it as



AX = BX = AB /2 …(1) 1

Similarly, CY = DY = CD/2 ….(2) ½

" . AB = CD

AB/2 = CD/2 ½

Therefore, AX = CY … (3) [Using (1) and (2)]

Now, by using the triangles AOX and COY,

∠ OXA = ∠ OYC (Both are 90°)

OA = OC (Radii)

AX = CY (From equation (3)) ½

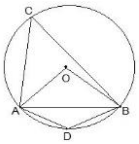
Δ AOX ≅ Δ COY By RHS rule ½

OX = OY CPCT

OR

The chord AB is equal to the radius of the circle.

AB = OA = OB = radius of the circle ½



∠AOC = 60° ½

And, ∠ACB = ½ ∠AOB

∠ACB = ½ × 60° = 30° ½

Now, since ACBD is a cyclic quadrilateral, ½

∠ADB +∠ACB = 180° (They are the opposite angles of a cyclic quadrilateral) ½

∠ADB = 180°-30° = 150° ½

31.: Graph: For correct construction of Polygon 2 ½

For labelling ½

SECTION D

32. We know that ∠BAD = ∠EAC given

by adding ∠DAC on both sides we get, ½

∠BAD + ∠DAC = ∠EAC +∠DAC 1

This implies, ∠BAC = ∠EAD ½

In ΔABC and ΔADE ½

AC = AE Given ½

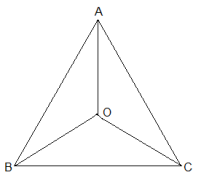
∠BAC = ∠EAD Proved above ½

AB = AD (It is also given in the question) ½

∴ ΔABC ≅ ΔADE. By SAS congruence rule ½

So, by the rule of CPCT, it can be said that BC = DE. ½

OR



Given:
AB = AC and
the bisectors of ∠B and ∠C intersect each other at O
Since ABC is an isosceles with AB = AC,
∠B = ∠C angles opposite to equal sides ½
½ ∠B = ½ ∠C ½
⇒ ∠OBC = ∠OCB (Angle bisectors) ½
∴ OB = OC (Side opposite to the equal angles are equal.) ½
(ii) In ΔAOB and ΔAOC,
AB = AC (Given in the question) ½
AO = AO (Common arm) ½
OB = OC (As Proved Already) ½
ΔAOB ≅ ΔAOC by SSS congruence condition. ½
∠BAO = ∠CAO (by CPCT)
AO bisects ∠A. ½

33.

In ΔABC and ΔDCB,

AB = DC	Sides of a square	½
∠ABC = ∠DCB	each angle is 90^0	
BC = CB	Common side	½
∴ ΔABC ≅ ΔDCB	SAS Rule	
∴ AC = DB	CPCT ---------- (1)	½

In ΔAOB and ΔCOD,

∠AOB = ∠COD	Vertically Opposite angles	½
∠ABO = ∠CDO	Alternate angles	½
AB = CD	Sides of a square	½
∴ ΔAOB ≅ ΔCOD	AAS Rule	

In ΔAOB and ΔCOB,

AO = CO		
AB = CB	Sides of a square	½
BO = BO	Common	
∴ ΔAOB ≅ ΔCOB	By SSS Rule	½
∴ ∠AOB = ∠COB (By CPCT) --------- (3)		
∠AOB + ∠COB = 180°	Linear pair	½
2∠AOB = 180°	[From equation (3)]	
∠AOB = 90° ---------- (4)		

34. 3x + 4x + 5x = 144 ½
x = 12 ½
a = 3 x 12 = 36cm, b =48 cm, c = 60 cm 1
S = $\frac{144}{2}$ ½

S = 72 cm ½

Area = $\sqrt{s(s-a)(s-b)(s-c)}$
= $\sqrt{72} \times 36 \times 48 \times 60$ ½

= 864 cm^2 ½

35 Volume of sphere = $\frac{4}{3}$ x $\frac{22}{7}$ x r ^{3} ½

$38808 = \frac{88}{21}$ r ^{3} ½

r $^3 = \frac{38808\ x\ 21}{88}$ ½

r = $\sqrt[3]{9261}$ ½

r = 21 cm 1

Surface area of sphere = 4 π r ^{2} ½

= 4 x $\frac{22}{7}$ x 21 x 21 ½

= 5544 cm ^{2} 1

OR

Slant height, l ^{2} = h ^{2} + r ^{2} ½

= $(10)^2 + (24)^2$ ½

= $\sqrt{676}$ ½

l = 26 m ½

CSA of tent = πrl ½

= (22/7) × 24×26 m^2 ½

Cost of 1 m^2 canvas = Rs 70 ½

Cost of (13728/7) m^2 canvas = Rs (13728/7)×70 ½

= Rs 137280 ½

36. i) $10^2 - 6^2 = \sqrt{64}$

= 8

AB = 2 x 8 1

= 16 cm 1

OR

$10^2 - 6^2 = \sqrt{36}$

= 6 1

CD = 2 x 6 =

= 12 cm 1

ii) Centre

iii) Chord 1

37. i) ∠5 = ∠1 corresponding angles

∠8 = ∠1 vertically opposite angles

= 65 ^{0} 1

ii) x = 55 ^{0} 2

OR

y = 46.6 ^{0}

iii) 75 ^{0} alternate angles 1

38. i) 145- 150 1

ii) 5 1

iii) 29 2

OR

40

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