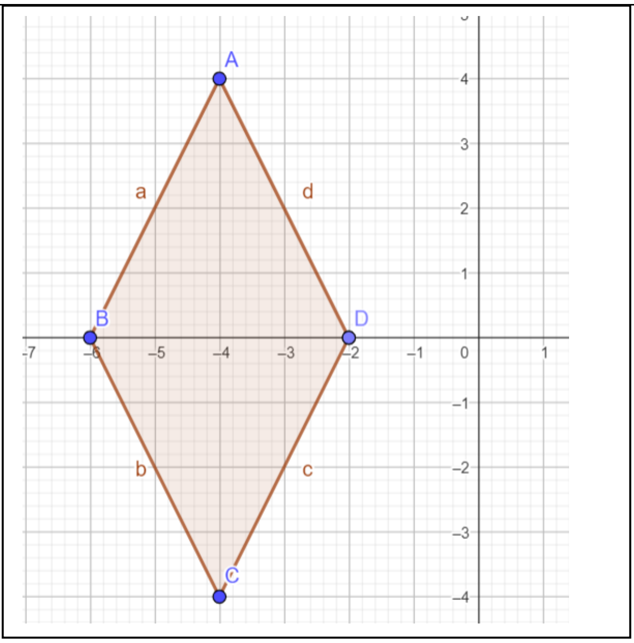
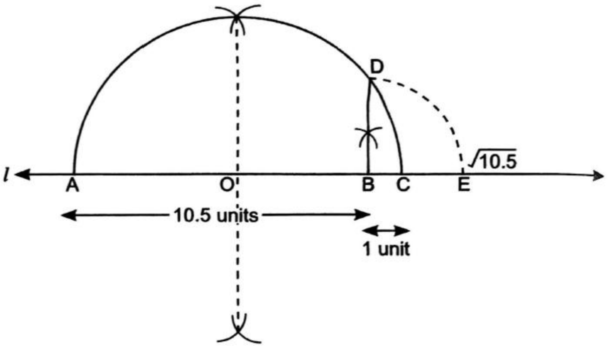
INDIAN SCHOOL AL WADI AL KABIR

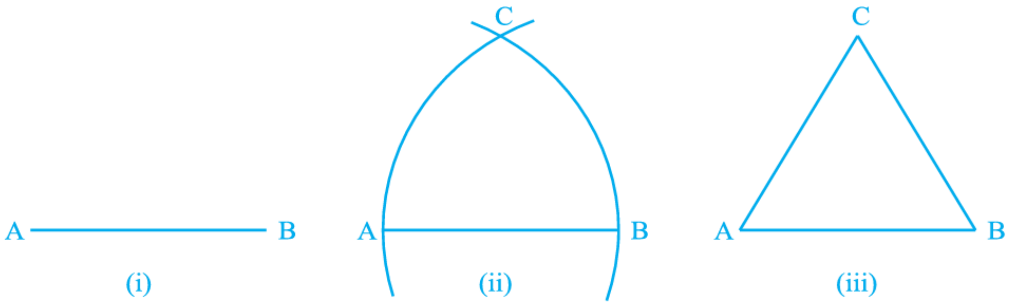
Mid Term Examination 2025-26

Class IX Marking Scheme-Set 1 23.09.2025

1	(D)$100\sqrt{3}$ cm ^{2}
2	(D)positive x - axis
3	(A)AC = DE
4	(B)105^{o}
5	(B)8
6	(A) Surfaces
7	(A) a unique real number
8	(B)Q and R
9	(B)8-11
10	(C)8cm,12cm, 12cm
11	(A) $\frac{125}{512}$
12	(C)DE = 5 cm, ∠E = 60°
13	(C) equal to 120°
14	(A) universal truths in all branches of mathematics
15	(B)40^{o}, 140^{o}
16	$(A)\sqrt{32}$ cm
17	(C) I and III quadrants
18	(B)8
19	(d) Assertion (A) is false but reason (R) is true.
20	(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)
	SECTION B

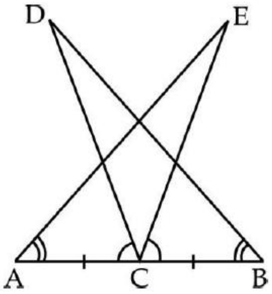
21	(i) 10, 16 1m (ii) 9+5+3+2=19 1m
22	(i) (0,0) (ii) (4,0) (iii) (0,-2) (iv) x =2, y =3 ½ m × 4
23	∠PQS + ∠PQR = 180°(Linear Pair) ½ m ∠PRQ + ∠PRT = 180°(Linear Pair) ½ m ∠PQS + ∠PQR = ∠PRQ + ∠PRT (Things equal to the same thing. Euclid's Axiom) ½ m ∠ PQS = ∠ PRT ½ m **OR** ∠AOE = 5y ½ m 2y + 2y + 5y = 180^0(Angles on a straight line) ½ m y = 20^0 ½ m ∠FOC = 5y + 2y = $100^0 + 40^0 = 140^0$ ½ m
24	AB=AC & AP=AQ(Given) AB−AP=AC−AQ ½ m BP = CQ ½m **Euclid's Axiom used:** "If equals be subtracted from equals, the remainders are equal." 1m
25	(a)Let x = $18.\overline{48}$ ½ m 100 x= $1848.\overline{48}$ ½ m 100 x – x = 1848 – 18 = 1830 ½ m x = $\frac{1830}{99} = \frac{610}{33}$ ½ m **OR** **(b)** $\sqrt{72}+\sqrt{800}-\sqrt{18} = \sqrt{\underline{6\times6}\times2}+\sqrt{\underline{2\times2}\times2\times\underline{10\times10}}-\sqrt{\underline{3\times3}\times2}$ 1m $= 6\sqrt{2}+20\sqrt{2}-3\sqrt{2} = (6+20-3)\sqrt{2}$ ½ m $= 23\sqrt{2}$ ½ m

	SECTION C	
	Section C consists of 6 questions of 3 marks each.	
26	$\frac{2}{(216)^{\frac{-2}{3}}}$ - $\frac{1}{(243)^{\frac{-2}{5}}}$ + $\frac{3}{(144)^{\frac{-1}{2}}}$ $2 \times 6^2 - 3^2 + 3\times 12$ $72 - 9 + 36 = 99$	½ m +½ m + ½ m 1m ½ m
27	Area = 16 sq. units (½ m)  	Axes -½ m Plotting Points:4 ×½ m
28	(a) Locate $\sqrt{10.5}$ geometrically on a number line. (*i*) Draw a line AB such that AB = 10.5 units on the number line. (*ii*) Extend the line *l* further from B up to C such that BC = 1 unit. (*iii*) Find the mid-point of AC and mark it as O. (*iv*) Draw a semicircle with centre O and radius OC. (*v*) Draw a line perpendicular to AC passing through point B and cut the semicircle at D. (*vi*) Taking B as centre, draw an arc of radius BD which intersects the number line at E. (*vii*) Point E represents $\sqrt{10.5}$ on the number line. $\therefore$ BD = BE = $\sqrt{10.5}$ units, with B as zero.  **OR** (b)	½ m ½ m ½ m ½ m ½ m ½ m

	$\frac{4+\sqrt{5}}{4-\sqrt{5}}+\frac{4-\sqrt{5}}{4+\sqrt{5}}=\left(\frac{4+\sqrt{5}}{4-\sqrt{5}}\right)\times\left(\frac{4+\sqrt{5}}{4+\sqrt{5}}\right)+\left(\frac{4-\sqrt{5}}{4+\sqrt{5}}\right)\times\left(\frac{4-\sqrt{5}}{4-\sqrt{5}}\right)$ **(Rationalising both denominators)** $=\frac{(4+\sqrt{5})^2}{(4)^2-(\sqrt{5})^2}+\frac{(4-\sqrt{5})^2}{(4)^2-(\sqrt{5})^2}=\frac{16+5+8\sqrt{5}}{16-5}+\frac{16+5-8\sqrt{5}}{16-5}$ $=\frac{1}{11}[21+8\sqrt{5}+21-8\sqrt{5}]=\frac{42}{11}$	1 m 1½ m ½ m
29	Sol: $s=\frac{40+70+90}{2}=\frac{200}{2}=100$ m. Heron's formula for the area, A, of a triangle is given by: $A=\sqrt{s(s-a)(s-b)(s-c)}$. Substituting the values: $A=\sqrt{100(100-40)(100-70)(100-90)}$. This simplifies to: $A=\sqrt{100\times 60\times 30\times 10}=\sqrt{1800000}$. The area can be further simplified as: $=\sqrt{18\times 10^5}=\sqrt{180\times 10^4}=100\sqrt{180}=100\sqrt{36\times 5}=100\times 6\sqrt{5}=600\sqrt{5}$ m^2. A=600×2.24=1344 m^2. Cost = 1344 × 500 = ₹67200	½ m 1m ½ m ½ m ½ m
30	(a) Any three Euclid's axioms. (1m ×3) **OR** (b)A line segment of any length is given, say AB.  (1m) Draw a circle with point A as the centre and AB as the radius. Draw another circle with point B as the centre and BA as the radius. The two circles meet at a point, say C. draw the line segments AC and BC to form Δ ABC. AB = AC, AB = BC (Radii of the same circle) . (1m) From these two facts, and Euclid's axiom that things which are equal to the same thing are equal to one another, you can conclude that AB = BC = AC. (1m) So, Δ ABC is an equilateral triangle.	

31

Given: To Prove:



Proof:

∠DCA + ∠DCE = ∠ECB + ∠DCE(Equals added to equals)

∠ACE = ∠BCD.

Consider triangles △DBC and △EAC:

BC = AC (Given)

∠DBC = ∠EAC(Given)

∠BCD = ∠ACE: (Proved above)

△DBC ≅ △EAC(ASA ≅)

BD = AE(CPCT)

½ m
½ m
½ m
½ m
½ m
½ m

SECTION D

32

(i) $$\frac{2-\sqrt{5}}{2+3\sqrt{5}} \times \frac{2-3\sqrt{5}}{2-3\sqrt{5}} = \frac{(2-\sqrt{5})(2-3\sqrt{5})}{(2+3\sqrt{5})(2-3\sqrt{5})}.$$

$$(2-\sqrt{5})(2-3\sqrt{5}) = 4-6\sqrt{5}-2\sqrt{5}+3(5) = 4-8\sqrt{5}+15$$

$$19-8\sqrt{5}$$

$$\frac{19-8\sqrt{5}}{-41} = -\frac{19}{41}+\frac{8\sqrt{5}}{41}.$$

$$a = \frac{8}{41} \text{ and } b = -\frac{19}{41}$$

½ m
½ m
½ m
½ m
1m

(ii) $\frac{1}{3} = 0.\overline{3}$ $\frac{1}{2} = 0.5$

Any two irrational numbers.

½ m + ½ m
½ m + ½ m

33

Case I:

$3k+4k+5k=60$ k = 60/12 = 5 — 1 m

a = 15 cm, b = 20 cm c = 25 cm — ½ m

S = 30 cm

$A_1 = \sqrt{30(30-15)(30-20)(30-25)}$. $A_1 = \sqrt{30 \times 15 \times 10 \times 5}$. $A_1 = \sqrt{22500}$. — 1m

$A_1 = 150$ cm^2. — ½m

Case II:

2x -4 + 2x + 1 + x+ 8 = 60 — ½ m

5x = 55

x = 11

a = 18, b = 23, c =19, s = 30 cm — ½ m

Area = $\sqrt{s(s-a)(s-b)(s-c)} = \sqrt{30(30-18)(30-23)(30-19)}$ — ½ m

= $\sqrt{30(12)(7)(11)} = 6\sqrt{770}$ cm^2 — ½ m

34

(a)

Marks	0-10	10-30	30-45	45-50	50-60
No. of students	8	32	18	10	6
Width	10	20	15	5	10
Adjusted Frequency	4	8	6	10	3

Correct Table – 2m

Correct graph- 3m

OR

(b)Histogram(3m) frequency polygon (2m)

35

$\angle 1 = 35°$ Corresponding angles — ½m

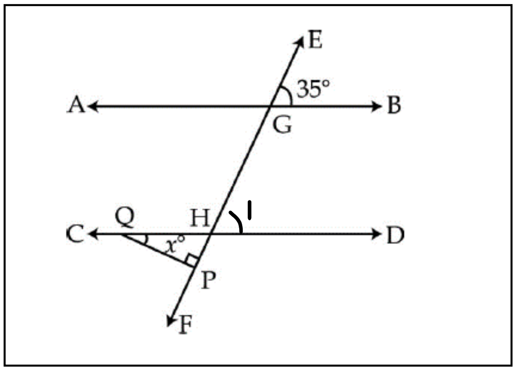
$\angle QHP = 35°$ V.O.A. — ½ m

In Δ PQH.

$\angle PQH + \angle QHP + \angle HPQ = 180°$ — .

$\angle PQH + 35° + 90° = 180°$ — ½ m

$\angle PQH = 55°$ — ½ m



(ii)

Const :

Draw $l \| AB$ — ½m

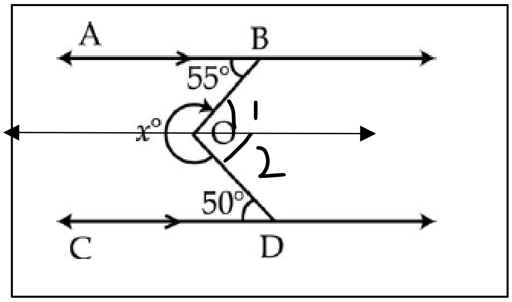
$\angle 1 = 55°$ (alternate angles) — ½ m

$\angle 2 = 50°$ (Alternate angles) — ½ m

$x = 360° - (\angle 1 + \angle 2)$ — 1 m

$= 360° - 105° = 255°$ — ½ m

OR



(b)

Given: A transversal AD intersects two lines PQ and RS at points B and C respectively. Ray BE is the bisector of ∠ ABQ and ray CG is the bisector of ∠ BCS; and BE || CG

To prove: PQ || RS (given : to prove:½m)

Proof:

It is given that ray BE is the bisector of ∠ ABQ.

Therefore, $\angle ABE = \frac{1}{2} \angle ABQ$ (1) — ½ m

Similarly, ray CG is the bisector of ∠ BCS.

Therefore, $\angle BCG = \frac{1}{2} \angle BCS$ (2) — ½ m

But BE || CG and AD is the transversal.

Therefore, $\angle ABE = \angle BCG$ — ½ m

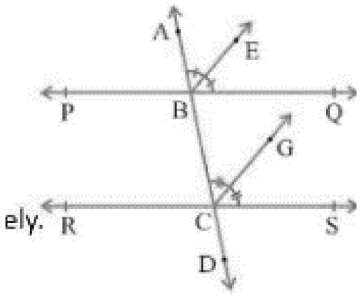
(Corresponding angles axiom) (3)

Substituting (1) and (2) in (3), you get

$$\frac{1}{2} \angle ABQ = \frac{1}{2} \angle BCS$$ — ½ m

That is, $\angle ABQ = \angle BCS$ — ½ m

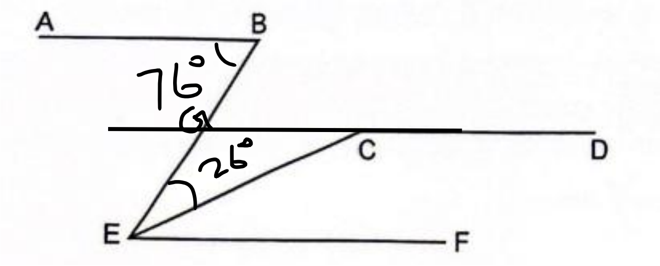
Correct figure: 1m



the corresponding angles formed by transversal AD with PQ and RS;and are equal. Therefore, PQ || RS(Converse of corresponding angles axiom) (½ m + ½ m)

SECTION E

36



Based on the above information and the given figure answer the following questions:

(i)Parallel Lines(AB ∥ EF and AB ∥ CD. Lines parallel to the same line) (½ m + ½ m)

(ii)∠CEF = 76° - 26° = 50^0(∠ABE= ∠BEF, Alt. int. angles) (½ m + ½ m)

(iii)(a) ∠BGC = 76^0(alternate interior angles) (1m)

∠BGC = ∠GEC + ∠GCE (exterior angle property)

∠GCE = $76^0 – 26^0 = 50^0$ (1m)

OR

(a) ∠ECD = $180^0 – 50^0$(Linear Pair) (½ m)

= 130^0 (½ m)

reflex ∠ECD = 360^0 - 130^0 =230^0 (1m)

37

Based on the above information answer the following questions.

(i) s =(17 + 17 + 16)/2 = 50/2 = 25 (½ m + ½ m)

(ii) 25-16 = 9 cm (½ m + + ½ m)

(iii) (a)

Area = $\sqrt{s(s-a)(s-b)(s-c)} = \sqrt{25(25-17)(25-17)(25-16)}$ (½ m)

$= \sqrt{25(8)(8)(9)}$ (½ m)

= 5(8)(3) =120 m^2 (½ m)

Total power generation capacity = 120 × 200 = 24000 watts (½ m)

OR

Area of 1 array = 120 m^2(Calculated above) (1 ½ m Marks to be given as per iii(a)

Installation cost of 5 arrays = 120 × 5 × 1200 = ₹720000 (½ m)

38	(i)Photocopy Shop(-2, 3) and Recreation Room(4,-4) (ii)8 UNITS (iii)(a)(i) (-3, 0) X axis (ii) (2, -1) IV (iii) (4, 3) I (iv) (-15, -1) III **OR** (b) Playground (-3,-4) Abscissa of Photocopy Shop(-2) and ordinate of the Medical Room.(2) Difference: -2 – 2 = -4 or 4

****