MARKING SCHEME (SA – II)

CLASS IX

SECTION-A

1.	(C)	2.	(A)	
3.	(B)	4.	(A)	
5.	(D)	6.	(B)	
7.	(D)	8.	(C)	**1mark each**

SECTION-B

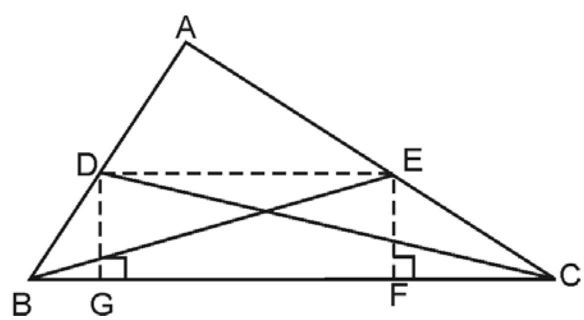
9. Figure, construction. ½

ar (DBC) = ar (EBC)

$\Longrightarrow \frac{1}{2}$ BC x DG = $\frac{1}{2}$ x BC x EF ½

$\Longrightarrow$ DG = EF ½

$\Longrightarrow$ DE∥BC ½



10. Let the edge of the cube be x units

Increased edge = $\frac{11x}{10}$ units ½

Original Surface Area = $6x^2$ ½

New Surface Area = 6 x $\frac{121}{100}x^2$, Increase in area = 6 x $\frac{121}{100}x^2 - 6x^2$ ½

∴ Surface Area increased by 21% = $\frac{21 \times 6}{100}x^2$ ½

11. Arranging the data (17 terms) in ascending order.

5, 5, 5, 6, 6, 6, 6, 7, 7, 7, 8, 8, 9, 9, 10, 10, 11 — 1

6 is repeated maximum number of times i.e. 4

∴ mode = 6 — 1

12. Prob. (he hits a boundary) = 4/30 — 1

∴ Prob. (he does not hit a boundary) = $1 - \frac{4}{30} = \frac{26}{30}$ or $\frac{13}{15}$ — 1

13. Fig. — ½

OA = O' A' (Radii of congruent circles)

OB = O' B'

$\angle$ AOB = $\angle$A' O' B' (given)

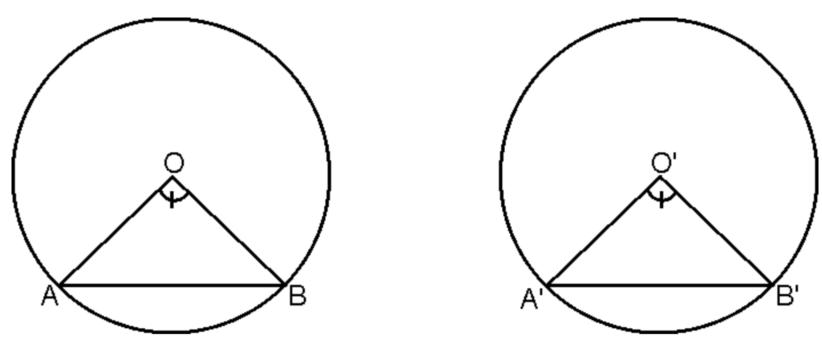
∴ $\triangle$OAB $\cong$ $\triangle$ O' A' B' (SAS) — 1

$\Longrightarrow$ AB = A' B' (CPCT) — ½

OR

$\angle ADB = 180^o - (70 + 35)^o = 75^o$ — 1

∴ $\angle ACB = 75^o$ (angles in the same segment) — ½ + ½



14. $$\frac{25 + 30 + 32 + x + 43}{5} = 34$$ — 1

$\Longrightarrow x = 40$ — 1

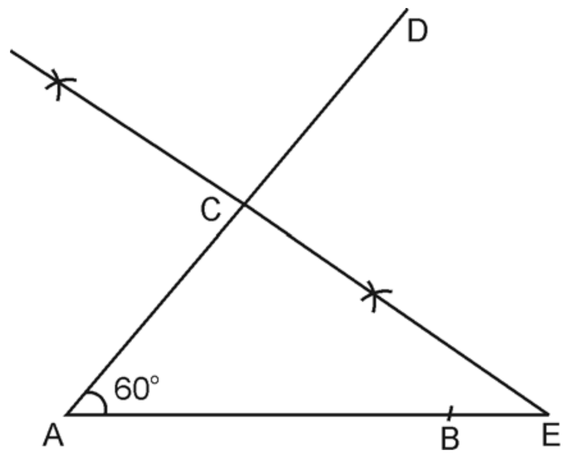
SECTION-C

15. 3x – 8y = 27: Some of the solution are (9,0), (1,-3), (-7, -6).

For each correct solution one mark

[These may be different also]

16.	Given, To prove, Figure		1
	Correct Proof of the theorem		2
17.	For constructing $\angle BAD = 60^\circ$ correctly		2
	For drawing perpendicular bisector of AD		½
	No, it does not pass through the point B.		½



18.	Inner radius of the cylinder	$= 0.5\text{mm} \ (r_1)$	
	Outer radius of the cylinder	$= 3.5\text{mm} \ . \ (r_2)$	½
	∴ Volume of the wood	$= \pi(r_2^2 - r_1^2)\ h$	½
		$= \frac{22}{7}(12.25 - .25) \times 140$	1
		$= 5280\text{mm}^3.$	1

OR

Volume of the wheat	$= \frac{1}{3}\pi r^2 h$	
	$= \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 3$	
	$= 154\ \text{m}^3$	
r = 7m, h = 3m ∴ ℓ	$= \sqrt{h^2 + r^2} = \sqrt{58}$ m.	1½
∴ Area of the canvas required	$= \pi r \ell$	
	$= \frac{22}{7} \times 7 \times \sqrt{58}$	
	$= 22\sqrt{58}\ \text{m}^2$	1

19.

Marks (x)	Number of students (f)	f x x	
10	6	60	
11	3	33	
12	4	48	
13	5	65	
14	7	98	
15	5	75	
	$\sum f$ =30	$\sum fx$ =379	2

Mean $(\overline{x})$ = $\frac{\sum fx}{\sum f}$ = $\frac{379}{30}$ ½

= 12.63 ½

OR

Arranging the data in ascending order

2, 5, 7, 7, 8, 10, 10, 10, 14, 17, 18, 24, 25, 27

n = 14, median = $\frac{7^{th}+8^{th}\ term}{2}$

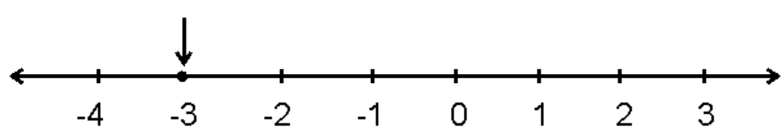
= $\frac{10 + 10}{2}$ = 10 1

Mode = 10 ½

Mean = $\frac{184}{14}$ 1

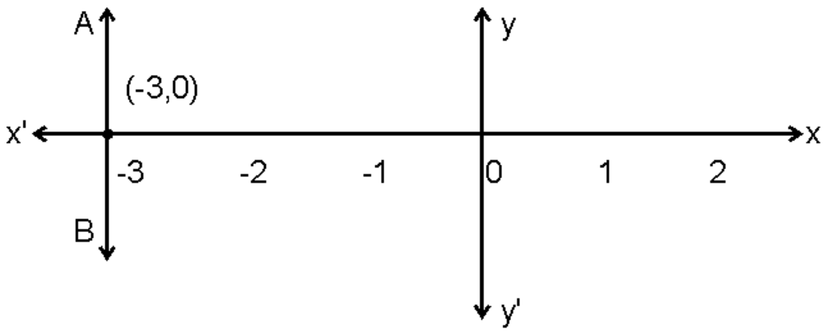
= 13.14 ½

20. (i) In one variable: x =-3, is represented on number line.



1

(ii) in two variables: Equation is x + o.y = -3 ½



1

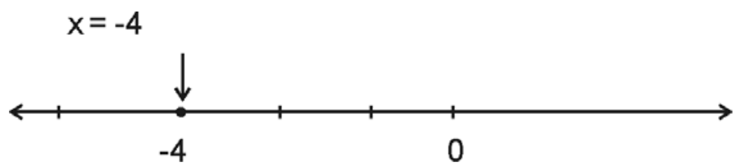
AB is the required line parallel to y-axis. ½

OR

2x + 1 = x – 3

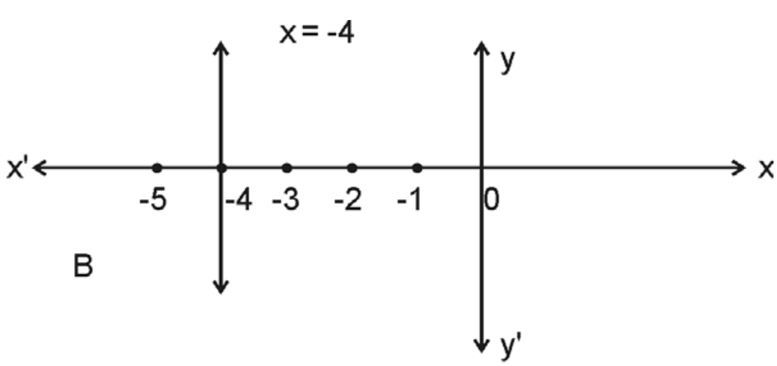
2x – x = -3 -1 1

(i)



1

(ii) 1



21. initial radius (r_1) = 7cm

Present radius (r_2) = 14cm

Initial surface area (S_1) = 4π x 7 x 7cm^2

Present surface area (S_2) = 4π x 14 x 14cm^2

$\frac{S_2}{S_1} = \frac{4}{1}$ or 4:1 1

22. DL∥BE and DE∥BL ⟹ quad. BEDL is a parallelogram. ½

⟹ DE = BL ⟹ AE = BL

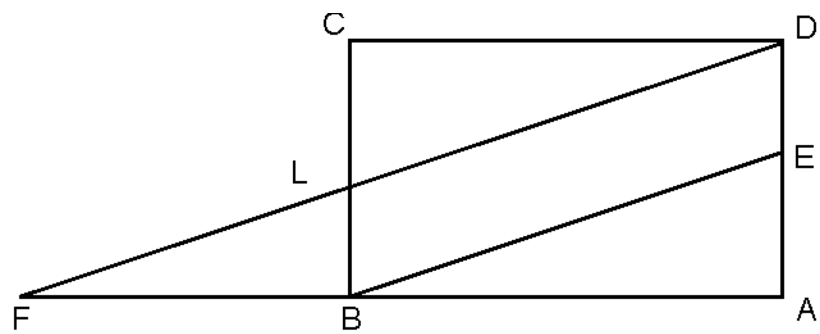
∠EBA = ∠LFB (corresponding angles)

∠FBL = ∠BAE (Corresponding angles

⟹ ΔFLB ≅ ΔBEA 1½

⟹ FB = BA or B is the mid point of FA. ½

and, EB = LF (cpct) ½



23. OB = OC (given)

∠1 = ∠2 (Vert. opp. angles)

∠3 = ∠4 (Alt. int. angles)

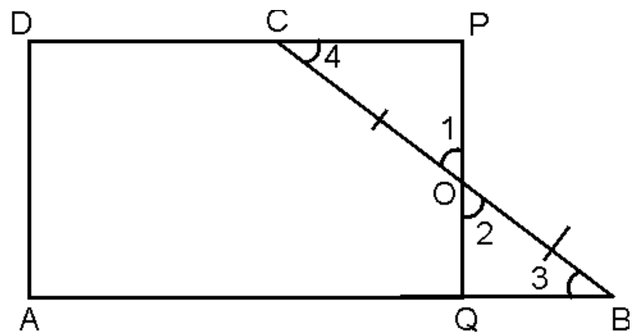
⟹ ΔOQB ≅ ΔOPC (ASA) 1½

⟹ ar (OQB) = ar (OPC) ½

Now ar (ABCD) = ar (AQOCD) + ar (OQB)

= Ar (AQOCD) + ar (OPC)

= Ar (AQPD) 1



24. (i) Prob. (getting a number less than 3) = $\frac{72+65}{400}$ = $\frac{137}{400}$ 1

(ii) Prob. (getting an outcome 6) = $\frac{59}{400}$ 1

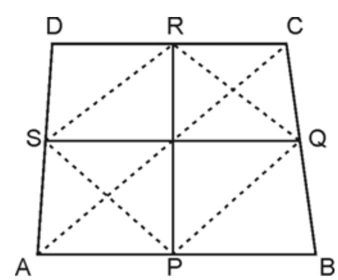
(iii) Prob. (getting a number more than 4) = $\frac{63+59}{400}$ = $\frac{61}{200}$ 1

SECTION-D

25. Let ABCD be a quadrilateral. P, Q, R, S are mid points of AB, BC, CD and DA respectively.

Join PQ, QR, RS and SP.

Join AC 1



In ΔDAC, SR$\parallel$AC & SR = $\frac{1}{2}$ AC (Mid point theorem) 2

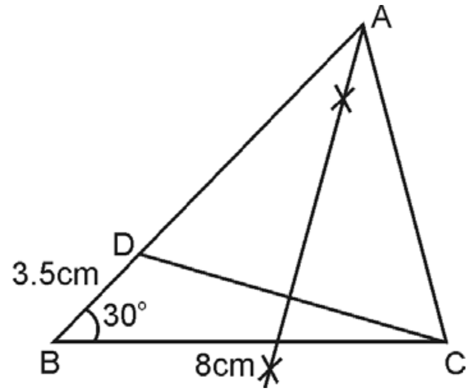
In ΔBAC, PQ$\parallel$AC & PQ = $\frac{1}{2}$ AC

$\Longrightarrow$ PQRS is a parallelogram ½

$\therefore$ PR and SQ are diagonals of PQRS, therefore PR & SQ bisect each other. ½

26. Correct construction of Δ CBD 2

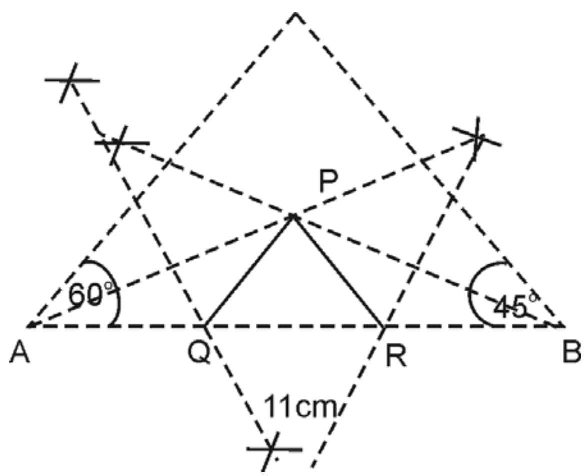
Correct construction of ΔABC 2



OR

Correct construction of ΔPAB 2

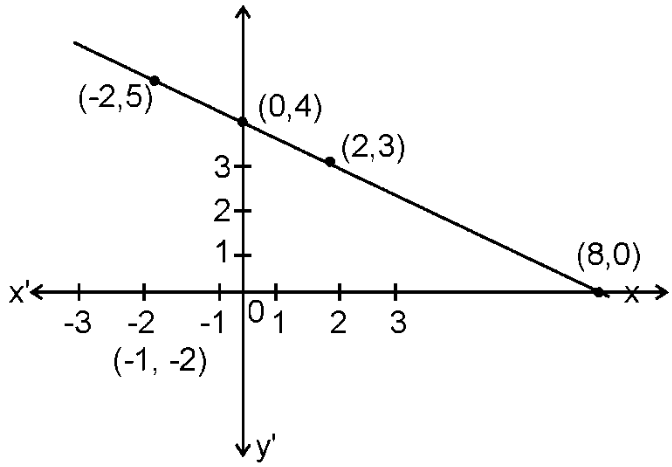
Correct construction of ΔPQR 2



27. Equation is x+2y = 8 $\Longrightarrow$ y = $\frac{1}{2}$ (8-x)

x	-2	0	2
y	5	4	3

½



Correct graph 2½

(-1, -2) does not lie on the line, therefore not a solution 1

28. Let the edge of the cube be x m.

Volume of water when tank is full = $15.625 m^3$ 1

$\Rightarrow x^3 = 15.625\ m^3 \Rightarrow x = 2.5 m$. 1

Volume of water remained in tank $= (2.5)^2 \times 1.3\ m^3$

$= 8.125 m^3$ 1

$\therefore$ Volume of water already used $= (15.625 - 8.125)\ m^3$

$= 7.500 m^3$ 1

29. $\angle QRP = 90^o$ (angle in a semi circle)

$\therefore \angle QPR = 90^o - 65^o = 25^o$ 1

$\therefore$ PQRS is a cyclic quadrilateral

$\therefore \angle PSR = (180-65)° = 115^o$ 1

$\Rightarrow \angle PRS = 180° - (115 + 40)° = 25^o$ 1

$\angle M = 90^o \therefore \angle QPM = 90°-50°=40^o$ 1

30. Draw perpendicular DE ad CF on AB from D and C respectively ½

ar (AOD) = ar (BOC)

$\Rightarrow$ ar (AOD) + ar (AOB) = ar (BOC) + ar (AOB) ½

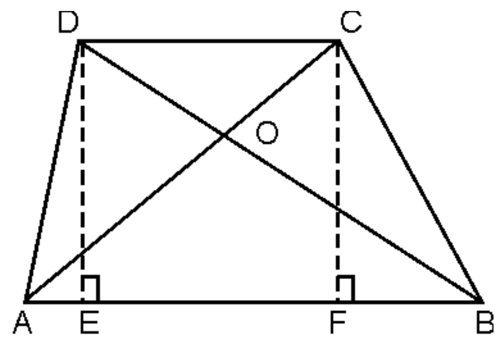
$\Longrightarrow$ ar (DAB = ar (CAB) ½

$\Longrightarrow$ $\frac{1}{2}$ AB x DE = $\frac{1}{2}$ AB x CF 1

$\Longrightarrow$ DE = CF ½

$\Longrightarrow$ AB∥DC ½

$\Longrightarrow$ ABCD is a trapezium. ½



OR

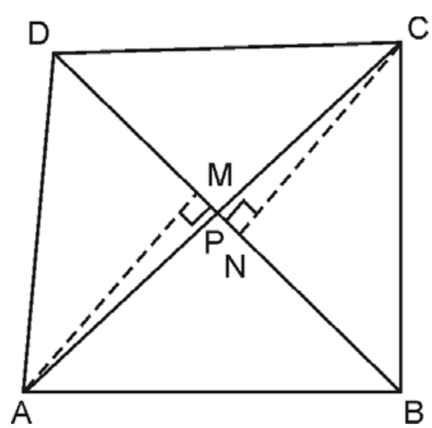
Draw perpendiculars CN and AM on BD from C and A respectively 1

ar (APB) x ar (CPD)

= $\frac{1}{2}$ (PB x AM) x $\frac{1}{2}$ (PD x CN) 1

= $\frac{1}{2}$ (PB X CN) x $\frac{1}{2}$ (PD x AM) 1

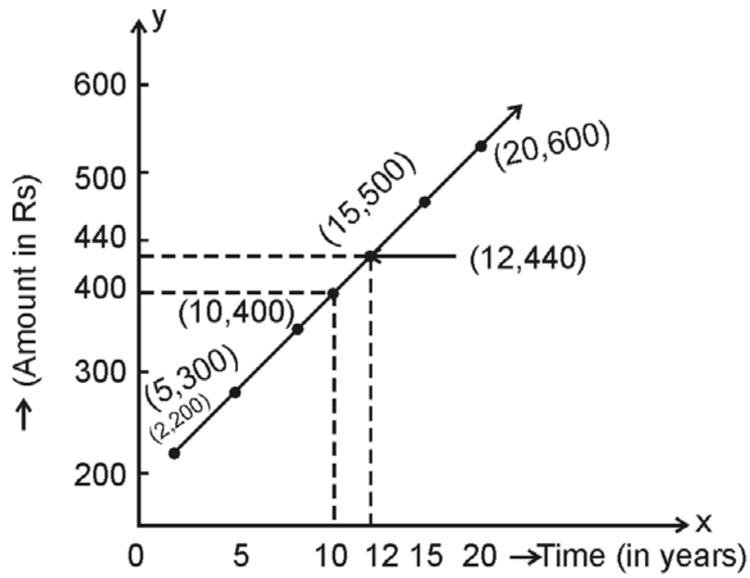
= ar (BPC) x ar (APD) 1



31. Plotting the points correctly $\frac{1}{2}$ x 5 = 2½

Joining the points ½

Amount after 12 years = Rs. 440 1



32. AB = CD

Draw OP ⊥ AB, OQ ⊥CD. 1

OP = OQ (equal chords are equidistant from centre)

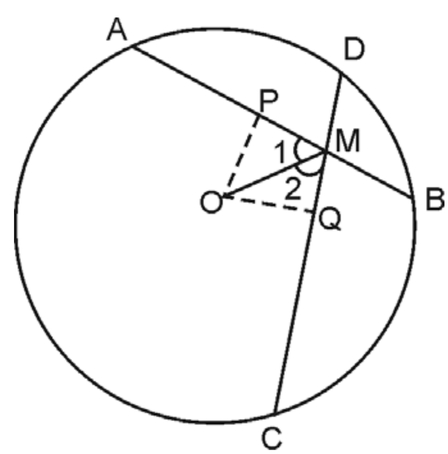
OM = OM

∠ OPM = ∠OQM (90^o each)

∴ △OPM ≅ △OQM (RHS) 2

⇒ ∠1 = ∠2 (cpct)

Or ∠OMP = ∠OMQ 1



33. Let the radius of the cone be r, slant height be ℓ, height be h.

$2\pi r = \frac{220}{7}$cm 1

$\Rightarrow$ r = 5cm

$\therefore$ ℓ = 13cm 1

$\therefore$ h = $\sqrt{13^2 - 5^2}$ = 12cm 1

$\therefore$ Volume of the cone = $\frac{1}{3}\pi r^2 h$

$= \frac{1}{3} \times \frac{22}{7} \times 5 \times 5 \times 12$ 1

$= \frac{2200}{7}$cm^3

34. Correctly drawn Histogram 3

Frequency polygon 1