Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Secondary School Examination, 2024
SUBJECT NAME MATHEMATICS (BASIC)
(For Visually Impaired Candidates Only) (Q.P. CODE 430(B))

General Instructions: -

1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2	**"Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, evaluation done and several other aspects. It's leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in News Paper/Website etc may invite action under various rules of the Board and IPC."**
3	Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating, answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In class-X, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.**
4	The Marking scheme carries only suggested value points for the answers. These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
6	Evaluators will mark (✓) wherever answer is correct. For wrong answer CROSS 'X" be marked. Evaluators will not put right (✓) while evaluating which gives an impression that answer is correct and no marks are awarded. **This is most common mistake which evaluators are committing.**
7	If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.

9	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note **"Extra Question"**.
10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks _____(example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines). This is in view of the reduced syllabus and number of questions in question paper.
13	Ensure that you do not make the following common types of errors committed by the Examiner in the past:- ● Leaving answer or part thereof unassessed in an answer book. ● Giving more marks for an answer than assigned to it. ● Wrong totaling of marks awarded on an answer. ● Wrong transfer of marks from the inside pages of the answer book to the title page. ● Wrong question wise totaling on the title page. ● Wrong totaling of marks of the two columns on the title page. ● Wrong grand total. ● Marks in words and figures not tallying/not same. ● Wrong transfer of marks from the answer book to online award list. ● Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.) ● Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0) Marks.
15	Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
16	The Examiners should acquaint themselves with the guidelines given in the "**Guidelines for spot Evaluation**" before starting the actual evaluation.
17	Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

MARKING SCHEME MATHEMATICS (BASIC)

(For Visually Impaired Candidates Only)

SECTION A

This section comprises Multiple Choice Questions of 1 mark each.

1. The total numbers of factors of a prime number is :

(A) 1 (B) 0

(C) 2 (D) 3

Ans. (C) 2 1

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2. If 1 is a zero of the polynomial $x^2 + ax + 2$, then 'a' is :

(A) 5

(B) 3

(C) – 3

(D) – 5

Ans.(C) – 3 1

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3. If one zero of the polynomial $(k - 2)x^2 - 10x + 3$ is reciprocal of the other, then the value of 'k' is :

(A) 3

(B) 5

(C) – 5

(D) – 3

Ans.(B) 5 1

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4. The value of 'k' for which the lines represented by the equations $3x + 5y = 2$ and $9x + 15y = 2k$ coincide, is :

(A) 3

(B) – 3

(C) 6

(D) – 6

Ans. (A) 3 1

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5. If 3 chairs and 1 table cost ₹ 900 and 5 chairs and 3 tables ₹ 2100, then the cost of one chair is :

(A) ₹ 100

(B) ₹ 110

(C) ₹ 150

(D) ₹ 450

Ans.(C) ₹ 150 1

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6. The discriminant of the quadratic equation $8x^2 + 2x - 3 = 0$, is :

(A) 100

(B) 92

(C) – 92

(D) 96

Ans.(A) 100 1

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7. The 30^{th} term of the AP 10, 7, 4, ... is :

(A) 87

(B) 77

(C) – 77

(D) – 87

Ans.(C) – 77 1

---

8. The distance between the points A(0, – 1) and B(0, – 9) is :

(A) 6 (B) 8

(C) 4 (D) 2

Ans. (B) 8 1

---

9. If (a, 6) is the mid-point of the line segment joining the points A(– 7, 7) and B(– 3, 5), then the value of 'a' is :

(A) 5

(B) – 4

(C) 2

(D) – 5

Ans. (D) – 5 1

---

10. The distance of the point P(3, – 5) from x-axis is :

(A) 3 units

(B) 5 units

(C) – 5 units

(D) $\sqrt{34}$ units

Ans. (B) 5 units 1

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11. In two concentric circles, a chord of length 24 cm of the outer circle is the tangent to the inner circle of radius 5 cm. The radius of the outer circle is :

(A) 13 cm

(B) 26 cm

(C) $\sqrt{601}$ cm

(D) $\sqrt{551}$ cm

Ans. (A) 13 cm 1

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12. If $\cos\theta = \frac{p}{q}$, then $\sin\theta$ is equal to :

(A) $\frac{q}{\sqrt{q^2 - p^2}}$

(B) $\frac{q}{p}$

(C) $\frac{\sqrt{q^2 - p^2}}{q}$

(D) $\frac{p}{\sqrt{q^2 - p^2}}$

Ans. (C) $\frac{\sqrt{q^2 - p^2}}{q}$ 1

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13. The value of cos 60° – cosec 30° + tan 45° is :

(A) 1

(B) $-\frac{1}{2}$

(C) $\frac{1}{2}$

(D) – 1

Ans. (B) $-\frac{1}{2}$ 1

---

14. For the following distribution, the lower limit of modal class is :

Class Interval	1 – 10	11 – 20	21 – 30	31 – 40	41 – 50
Frequency	10	12	20	5	3

(A) 21

(B) 30·5

(C) 21·5

(D) 20·5

Ans. (D) 20·5 1

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15. When a die is thrown, the probability of getting an odd number greater than 3 is :

(A) $\frac{1}{6}$

(B) $\frac{1}{3}$

(C) $\frac{1}{2}$

(D) 0

Ans. (A) $\frac{1}{6}$ 1

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16. The probability for a leap year (selected at random) will contain 53 Tuesdays is :

(A) $\frac{1}{7}$

(B) $\frac{2}{7}$

(C) $\frac{3}{7}$

(D) $\frac{4}{7}$

Ans. (B) $\frac{2}{7}$ 1

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17. If the volumes of two spheres are in the ratio 125 : 64, then the ratio of their surface areas is :

(A) 5 : 4

(B) 25 : 16

(C) 125 : 64

(D) 16 : 5

Ans. (B) 25 : 16 1

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18. Two cubes each of volume 64 cm^3 are joined end to end to form a cuboid. The total surface area of the resulting cuboid is :

(A) 192 cm^2

(B) 160 cm^2

(C) 128 cm^2

(D) 176 cm^2

Ans.(B) 160 cm^2 1

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*Questions number **19** and **20** are Assertion and Reason based questions. Two statements are given, one labelled as Assertion (A) and the other is labelled as Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below.*

(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, but 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.

19. *Assertion (A) :* The volume of a cone of radius 7 cm and height 12 cm is 616 cm^3.

Reason (R) : The volume of a cone is $\frac{1}{3}\pi r^2 h$, (where r is radius and h is the height).

Ans. (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). 1

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20. *Assertion (A) :* The probability of getting an even number, when a die is thrown once, is $\frac{1}{2}$.

Reason (R) : In a die, total number of possible outcomes is 6 and the even numbers are 2, 4 and 6.

Ans. (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). 1

SECTION B

This section comprises Very Short Answer (VSA) type questions of 2 marks each.

21. Solve the following pair of linear equations :

$2x - 3y - 17 = 0$ and $4x + y - 13 = 0$

Solution: Solving to get x = 4 1

Solving to get y = -3 1

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22. An integer is chosen at random from integers 1 to 50. Find the probability that the selected integer is divisible by 6.

Solution: Total outcomes = 50

Integers divisible by 6 are 6, 12, 18, 24, 30, 36, 42, 48 1

Required probability = $\frac{8}{50}$ or $\frac{4}{25}$ 1

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23. (a) If $\operatorname{cosec}\theta = \sqrt{10}$, then find the values of $\tan\theta$ and $\sec\theta$.

OR

(b) Prove that $\cos^4 A - \sin^4 A = 2\cos^2 A - 1$.

Solution:(a) Finding $\tan\theta = \frac{1}{3}$ 1

Finding $\sec\theta = \frac{\sqrt{10}}{3}$ 1

OR

(b)LHS $= (\cos^2 A + \sin^2 A)(\cos^2 A - \sin^2 A) = \cos^2 A - \sin^2 A$ 1

$= \cos^2 A - (1 - \cos^2 A) = 2\cos^2 A - 1 = RHS$ 1

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24. A line l intersects sides PQ and PR of Δ PQR at L and M respectively such that LM $||$ QR. If PQ = 12 cm, PR = 10 cm and PL = 7·2 cm, then find the length of PM.

Solution: $\frac{PL}{PQ} = \frac{PM}{PR}$ 1

$\Rightarrow \frac{7{\cdot}2}{12} = \frac{PM}{10}$ $\frac{1}{2}$

$\Rightarrow$ PM = 6 cm $\frac{1}{2}$

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25. (a) Using prime factorization, find the HCF and LCM of 6, 72 and 120.

OR

(b) There is a circular path around a sports field. Three cyclists start from the same point and at the same time and go in the same direction. If they take 30 minutes, 40 minutes and 48 minutes respectively to complete one round of the field, after how many minutes will they meet again at the starting point ?

Solution: (a) $6 = 2 \times 3$

$72 = 2^3 \times 3^2$

$120 = 2^3 \times 3 \times 5$ } 1

HCF $= 2 \times 3 = 6$ $\frac{1}{2}$

LCM $= 2^3 \times 3^2 \times 5 = 360$ $\frac{1}{2}$

OR

(b) LCM of 30,40 and 48 = 240 $1\frac{1}{2}$

They will meet after 240 minutes or 4 hours. $\frac{1}{2}$

SECTION C

This section comprises Short Answer (SA) type questions of 3 marks each.

26. (a) Determine the ratio in which the point (– 6, y) divides the line segment joining the points A(– 3, – 1) and B(– 8, 9). Also, find the value of y.

OR

(b) If A(2, – 2), B(7, 3), C(11, – 1) and D(6, – 6) are the vertices of a quadrilateral ABCD, then find what type of quadrilateral ABCD is.

Solution: (a)Let the ratio be k:1

$$-6 = \frac{-8k-3}{k+1}, \quad y = \frac{9k-1}{k+1} \qquad 1$$

$$\Rightarrow k = \frac{3}{2} \quad \text{or} \quad 3:2 \qquad 1$$

$$y = \frac{9\left(\frac{3}{2}\right)-1}{\frac{3}{2}+1} = 5 \qquad 1$$

OR

(b)

$AB = \sqrt{25+25} = 5\sqrt{2}$

$BC = \sqrt{16+16} = 4\sqrt{2}$

$CD = \sqrt{25+25} = 5\sqrt{2}$

$AD = \sqrt{16+16} = 4\sqrt{2}$

$\Rightarrow$ ABCD is a parallelogram 2

$AC = \sqrt{81+1} = \sqrt{82}$

$BD = \sqrt{1+81} = \sqrt{82}$

$\Rightarrow AC = BD \Rightarrow$ ABCD is a rectangle 1

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27. Prove that $3 + 2\sqrt{5}$ is an irrational number, given that $\sqrt{5}$ is an irrational number.

Solution: Let us assume that $x = 3 + 2\sqrt{5}$ is a rational number 1

$$\Rightarrow \sqrt{5} = \frac{x-3}{2} \qquad 1$$

Now RHS is a rational number but LHS is an irrational number

$\therefore$ our assumption is wrong 1

Hence $3 + 2\sqrt{5}$ is an irrational number

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28. (a) If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta$, then show that $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$.

OR

(b) Prove that $\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1 + \tan\theta + \cot\theta$.

Solution: (a) $(\sqrt{2}-1)\cos\theta = \sin\theta$ 1

$\Rightarrow \frac{(\sqrt{2}+1)(\sqrt{2}-1)\cos\theta}{(\sqrt{2}+1)} = \sin\theta$ 1

$\Rightarrow \cos\theta = (\sqrt{2}+1)\sin\theta$ 1

or $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$.

OR

(b) LHS $= \frac{\tan^2\theta}{\tan\theta - 1} + \frac{1}{\tan\theta(1-\tan\theta)}$ 1

$= \frac{\tan^3\theta - 1}{\tan\theta(\tan\theta - 1)}$ $\frac{1}{2}$

$= \frac{(\tan\theta - 1)(\tan^2\theta + \tan\theta + 1)}{(\tan\theta - 1)\tan\theta}$ 1

$= 1 + \tan\theta + \cot\theta = \text{RHS}$ $\frac{1}{2}$

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29. A lending library has a fixed charge for the first three days and an additional charge for each day thereafter. Sarita paid ₹ 27 for a book kept for seven days, while Ravi paid ₹ 24 for a book he kept for six days. Find the fixed charge and the charge for each extra day.

Solution: Let fixed charges be ₹ x and additional charges per day be ₹ y

ATQ

$x + 4y = 27$ ----------(i) 1

$x + 3y = 24$----------(ii) 1

Solving (i) and (ii)

$x = 15, y = 3$ 1

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30. Two tangents PA and PB are drawn to a circle with centre O from an external point P. Prove that $\angle APB = 2\angle OAB$.

Solution: Let $\angle OAB = \theta$

$\therefore \angle PAB = 90^0 - \theta$

$\angle PBA = 90^0 - \theta$ 1

$\Rightarrow \angle APB = 180^0 - 2(90^0 - \theta) = 2\theta$ 1

$\therefore \angle APB = 2\angle OAB$ 1

31. A vessel is in the form of a hollow hemisphere surmounted by a hollow cylinder of the same radius. The diameter of the hemisphere is 14 cm and the total height of the vessel is 13 cm. Find the inner surface area of the vessel.

Solution: Height of cylinder = 13 – 7 = 6 cm $\frac{1}{2}$

SA of the vessel = CSA of hemisphere + CSA of cylinder

$= 2\pi r^2 + 2\pi rh$

$= 2\pi r(r + h)$

$= 2 \times \frac{22}{7} \times 7 \times 13$ 1+1

$= 572 \text{ cm}^2$ $\frac{1}{2}$

SECTION D

This section comprises Long Answer (LA) type questions of 5 marks each.

32. (a) The perimeter of a sector of a circle of radius 6·5 cm is 31 cm. Find the area of the sector.

OR

(b) A chord of a circle of radius 21 cm subtends an angle of 60° at the centre. Find the area of the minor segment of the circle. [Use $\sqrt{3} = 1{\cdot}73$].

Solution:(a) $2r + l = 31 \Rightarrow 13 + l = 31 \Rightarrow l = 18$ 2

$2 \times \frac{22}{7} \times \frac{65}{10} \times \frac{\theta}{360} = 18$ ----------(i) 2

Area of sector = $\pi r^2 \frac{\theta}{360} = 9 \times 6.5 = 58{\cdot}5 \text{ cm}^2$ [using (i)] 1

OR

(b) $A = \frac{22}{7} \times 21 \times 21 \times \frac{60}{360} - 21 \times 21 \times \frac{\sqrt{3}}{4}$ 3

$= 231 - \frac{441\sqrt{3}}{4}$ $1\frac{1}{2}$

$= 40.27 \text{ cm}^2$ $\frac{1}{2}$

33. Find the sum of all integers between 50 and 500 which are divisible by 7.

Solution: $a = 56, d = 7, a_n = 497$ 2

$497 = 56 + (n - 1)\,7 \Rightarrow n = 64$ 1

$S_{64} = 32(56 + 497) = 32(553) = 17696$ 2

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34. (a) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then show that the other two sides are divided by this line in the same ratio.

OR

(b) ABCD is a trapezium with AB || DC and the diagonals intersect each other at the point O.

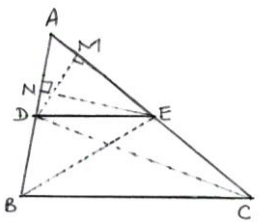
Show that $\frac{AO}{BO} = \frac{CO}{DO}$.

Solution: (a)Given: In Δ ABC, DE || BC

To Prove: $\frac{AD}{DB} = \frac{AE}{EC}$

Construction: Join BE, DC

Draw DM ⊥ AC and EN ⊥ AB



$1\frac{1}{2}$

Proof:

$\frac{ar(\Delta ADE)}{ar(\Delta BDE)} = \frac{\frac{1}{2} \times AD \times EN}{\frac{1}{2} \times DB \times EN}$

$\frac{ar(\Delta ADE)}{ar(\Delta BDE)} = \frac{AD}{DB}$ (i) 1

and $\frac{ar(\Delta ADE)}{ar(\Delta CDE)} = \frac{\frac{1}{2} \times AE \times DM}{\frac{1}{2} \times EC \times DM}$

$\frac{ar(\Delta ADE)}{ar(\Delta CDE)} = \frac{AE}{EC}$ (ii) **1**

Δ BDE and Δ CDE are on the same base DE and between the same parallels DE and BC.

∴ ar (Δ BDE) = ar (Δ CDE) (iii) 1

From (i), (ii) and (iii)

$\frac{AD}{DB} = \frac{AE}{EC}$ $\frac{1}{2}$

OR

(b) In Δ AOB and Δ COD

∠ CAB = ∠ DCA (alternate interior angles)

∠ AOB = ∠ COD (vertically opposite angles)

⇒ Δ AOB ~ Δ COD (AA criteria) 3

$\frac{OA}{OC} = \frac{OB}{OD}$ 1

$\Rightarrow \frac{OA}{OB} = \frac{OC}{OD}$ 1

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35. From a point on the ground, the angles of elevation of the bottom and top of a transmission tower fixed at the top of a 30 cm high building are 45° and 60° respectively. Find the height of the transmission tower. [Use $\sqrt{3} = 1{\cdot}732$]

Solution: Let x be the distance between the transmission tower and the point on the ground.

$\frac{30}{x} = \tan 45^0$ 1

$\Rightarrow$ x = 30 cm 1

$\frac{h+30}{30} = \tan 60^0$ 1

$h + 30 = 30\sqrt{3} \Rightarrow h = 30(\sqrt{3} - 1)$ 1

$= 30 \times (0{\cdot}732) = 21.96$ cm 1

NOTE: For Hindi version x =30 m and h =21.96 m

SECTION E

This section comprises 3 case study based questions of 4 marks each.

Case Study – 1

36. The speed of a motor boat in still water is 25 km/h. For covering a distance of 40 km, the boat took 40 minutes more to go upstream than downstream.

Based on the above, answer the following questions :

(i) Let the speed of the stream be x km/h. Express, in terms of x, the speed of the motor boat going upstream. *1*

(ii) Express the above situation in terms of a quadratic equation in x. *1*

(iii) (a) Find the speed of the stream. *2*

OR

(b) If the speed of the stream is 10 km/h, how much time will the boat take to cover 40 km upstream ? *2*

Solution: (i) Speed upstream = (25 – x) km/h 1

(ii) $\frac{40}{25 - x} - \frac{40}{25 + x} = \frac{40}{60}$ $\frac{1}{2}$

$\Rightarrow x^2 + 120x - 625 = 0$ $\frac{1}{2}$

(iii) (a) $x^2 + 120x - 625 = 0$

$\Rightarrow (x + 125)(x - 5) = 0 \Rightarrow x = 5$ km/h. (as $x \neq -125$) 1+1

OR

(iii) (b) Speed of stream = 10 km/h

$\Rightarrow$ speed up stream = 25 - 10 = 15 km/h 1

$\Rightarrow$ time = $\frac{40}{15} = \frac{8}{3} = 2\frac{2}{3}$ hrs. or 160 minutes 1

Case Study – 2

37. As part of 'Swachh Bharat Abhiyan', some houses of a locality in Delhi decided to clean up and beautify a school of their locality by planting a number of plants. The data indicating the number of plants contributed by different houses is tabulated below :

Number of Plants Contributed	1 – 4	4 – 7	7 – 10	10 – 13	13 – 16	16 – 19
Number of Houses	10	8	9	7	12	4

(i) Write the median class. *1*

(ii) Write the modal class. *1*

(iii) (a) Find the median of the given data. *2*

OR

(b) Find the mode of the given data. *2*

Solution: (i) Median class: 7 – 10 1

(ii) Modal class : 13 – 16 1

(iii) (a) For correct c.f table $\frac{1}{2}$

$$\text{Median} = 7 + \frac{25 - 18}{9} \times 3 = \frac{28}{3} \text{ or } 9.33 \qquad 1+\frac{1}{2}$$

OR

$$\text{(iii) (b) Mode} = 13 + \frac{12 - 7}{24 - 7 - 4} \times 3 = \frac{184}{13} \text{ or } 14.15 \qquad 1\frac{1}{2}+\frac{1}{2}$$

Case Study – 3

38. Hari was eating ice-cream on his way back home from school. When he observed the shape of the ice-cream from the side view, he found it to be a circle with two tangents.

If PA and PB are the two tangents to the circle from an external point P and $\angle APB = 60^\circ$, then answer the following :

(i) What is the measure of $\angle PAO$, where O is the centre of circle ? *1*

(ii) If the radius of the circle is 3 cm, then find the length of tangent PA. *1*

(iii) (a) Find the measure of $\angle AOB$. *2*

OR

(b) Join AB and find the measure of $\angle OAB$. *2*

Solution: (i) $\angle PAO = 90°$ 1

(ii) $\tan 30^0 = \frac{3}{PA}$ $\frac{1}{2}$

$\Rightarrow PA = 3\sqrt{3}$ cm $\frac{1}{2}$

(iii) (a) In quadrilateral AOBP

$90^0+90^0+60^0+\angle AOB = 360^0$ 1

$\angle AOB = 120°$ 1

OR

(iii) (b) getting $\angle BAP = 60^0$ 1

$\angle OAB = 90^0 - \angle BAP = 90° - 60 = 30°$ 1
