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Answer Sheet No. _____

Sign. of Candidate _____

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MATHEMATICS SSC-I (2nd Set)

(Science Group) (Curriculum 2006)

SECTION – A (Marks 15)

Time allowed: 20 Minutes

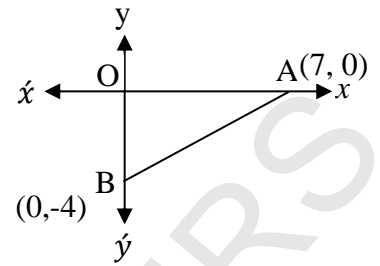
Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

- (1) What is resultant matrix when $\begin{bmatrix} 1 & -2 & 4 \\ 3 & 1 & 6 \\ 2 & 3 & 1 \end{bmatrix}$ is multiplied by 2?
- A. $\begin{bmatrix} 2 & -2 & 4 \\ 6 & 1 & 6 \\ 4 & 3 & 1 \end{bmatrix}$ B. $\begin{bmatrix} 2 & -4 & 8 \\ 3 & 1 & 6 \\ 2 & 3 & 1 \end{bmatrix}$
 C. $\begin{bmatrix} 2 & -2 & 4 \\ 3 & 2 & 6 \\ 2 & 3 & 2 \end{bmatrix}$ D. $\begin{bmatrix} 2 & -4 & 8 \\ 6 & 2 & 12 \\ 4 & 6 & 2 \end{bmatrix}$
- (2) The values of a and b in $\frac{2-3i}{i} = a - bi$.
- A. $a = -3, b = -2$ B. $a = 3, b = 2$
 C. $a = 3, b = 2$ D. $a = 3, b = -2$
- (3) Which one of the following represents the identity $x^3 - y^3$?
- A. $(x - y)(x^2 + xy - y^2)$
 B. $(x - y)(x^2 - xy - y^2)$
 C. $(x - y)(x^2 - xy + y^2)$
 D. $(x - y)(x^2 + xy + y^2)$
- (4) The factorized form of $12x^2 - 4x - 1$?
- A. $(2x - 1)(6x + 1)$ B. $(2x + 1)(6x - 1)$
 C. $(4x - 1)(3x - 1)$ D. $(4x - 1)(3x + 1)$
- (5) The solution of $\frac{x-5}{-7} < 3$ is :
- A. $x > -16$ and $x = -16$
 B. $x < -16$ or $x = -16$
 C. $x > -16$ or $x = -16$
 D. $x < -16$ or $x = -16$

(6) In the figure what is the mid point of \overline{AB} ?

- A. $(\frac{7}{2}, -2)$
- B. $(-2, \frac{7}{2})$
- C. $(7, -4)$
- D. $(-4, 7)$



(7) The simplest form of $1 - \frac{2x-1}{x-3}$ is :

- A. $\frac{-x-2}{x-3}$ B. $\frac{x-2}{x-3}$
- C. $\frac{-x-4}{x-3}$ D. $\frac{x-4}{x-3}$

(8) The logarithmic form of $2^x = 32$ is:

- A. $\log_2 32 = x$ B. $\log_2 x = 32$
- C. $\log_{32} 2 = x$ D. $\log_x 32 = 2$

(9) What is remainder when $x^3 - 3x^2 + x - 1$ is divided by $2x + 1$?

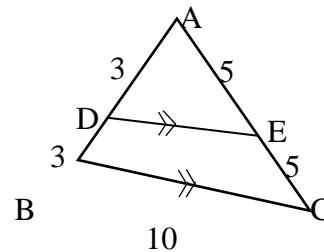
- A. $-\frac{19}{8}$ B. 0
- C. $\frac{3}{8}$ D. $-\frac{7}{8}$

(10) Which one of the following identifies right triangle BAC with $a > b$ and $a > c$?

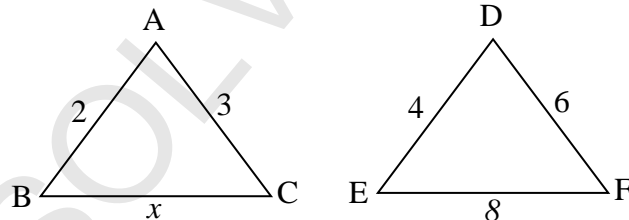
- A. $c^2 = a^2 + b^2$ B. $a^2 = b^2 + c^2$
- C. $b^2 = a^2 + c^2$ D. $a^2 = b^2 - c^2$

(11) What is the value of $m\overline{DE}$?

- A. 5
- B. 5.5
- C. 6
- D. 6.5



(12) If $\triangle ABC \sim \triangle DEF$, then value of x is :



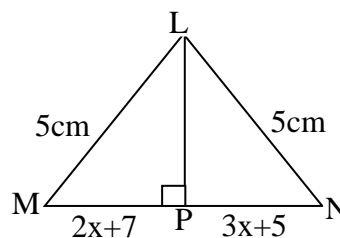
- A. 4 B. 8
- C. 5 D. 1

(13) Which one of the following options is the solution of $|2x + 3| = -5$?

- A. {4} B. {-4, 1}
- C. {4, 1} D. {}

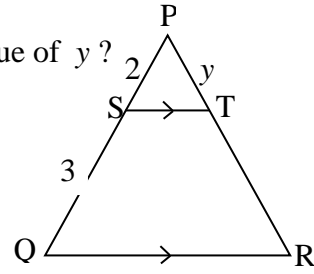
(14) What is the length of \overline{MN} ?

- A. 2
- B. 4
- C. -2
- D. 12



(15) In the figure $\overline{ST} \parallel \overline{QR}$ and $m\overline{PR} = 10$. What is value of y ?

- A. 15
- B. 5
- C. $\frac{20}{3}$
- D. 4



FBISE SOLVED PAST PAPERS

Model Question Paper SSC-I

Mathematics(Science Group)

(2nd Set)SOLUTION

SECTION-A

| | | | | | | | | | | | | | | | |
|---|---|----|---|----|---|----|---|----|---|----|---|----|---|---|---|
| 1 | D | 2 | A | 3 | D | 4 | A | 5 | D | 6 | A | 7 | A | 8 | A |
| 9 | A | 10 | B | 11 | A | 12 | A | 13 | D | 14 | B | 15 | D | | |

SECTION-B

Question-2(i)

$$BC = \begin{bmatrix} -5 & -3 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} -18 & -11 \\ 7 & 4 \end{bmatrix}$$

$$A(BC) = \begin{bmatrix} 0 & 2 \\ 3 & -1 \end{bmatrix} \begin{bmatrix} -18 & -11 \\ 7 & 4 \end{bmatrix} = \begin{bmatrix} 14 & 8 \\ -61 & -37 \end{bmatrix}$$

$$AB = \begin{bmatrix} 0 & 2 \\ 3 & -1 \end{bmatrix} \begin{bmatrix} -5 & -3 \\ 2 & 1 \end{bmatrix} = \begin{bmatrix} 4 & 2 \\ -17 & -10 \end{bmatrix}$$

$$(AB)C = \begin{bmatrix} 4 & 2 \\ -17 & -10 \end{bmatrix} \begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 14 & 8 \\ -61 & -37 \end{bmatrix}$$

From above $A(BC) = (AB)C$

Question-2(ii)

$$\text{Let } x = \frac{\sqrt[3]{46.3}(0.05)^2}{\sqrt{8.54}}$$

Taking log of both sides

$$\log x = \log \sqrt[3]{46.3} + \log(0.05)^2 - \log \sqrt{8.54}$$

$$\log x = \log(46.3)^{1/3} + \log(0.05)^2 - \log(8.54)^{1/2}$$

$$\log x = \frac{1}{3} \log 46.3 + 2 \log 0.05 - \frac{1}{2} \log 8.54$$

$$\log x = \frac{1}{3} (1.6660) + 2(\bar{2}.6990) - \frac{1}{2} (0.9315)$$

$$\log x = 0.5553 + 2(-2 + 0.6990) - 0.4658$$

$$\log x = 0.5553 - 4 + 1.3980 - 0.4658$$

$$\log x = -2.5125 = \bar{2}.5125$$

$$x = \text{antilog } \bar{2}.5125$$

$$x = 0.03256$$

Question-2(iii)

$$\begin{aligned} & \left(\frac{15m^3n^{-2}p^{-1}}{25m^{-2}n^{-9}} \right)^{-3} \\ &= \left(\frac{3m^{3+2}n^{-2+9}p^{-1}}{5} \right)^{-3} \\ &= \left(\frac{3m^5n^7}{5p} \right)^{-3} = \left(\frac{5p}{3m^5n^7} \right)^3 \\ &= \left(\frac{5^3p^3}{3^3m^{5 \times 3}n^{7 \times 3}} \right) \\ &= \left(\frac{125p^3}{27m^{15}n^{21}} \right) \end{aligned}$$

Question-2(iv)

$$(1 + i)^3(x + yi) = (4 + 5i)$$

$$(1 + 3i + 3i^2 + i^3)(x + yi) = 4 + 5i$$

$$(1 + 3i - 3 - i)(x + yi) = 4 + 5i$$

$$(2i - 2)(x + yi) = 4 + 5i$$

$$2xi + 2yi^2 - 2x - 2yi = 4 + 5i$$

$$2xi - 2y - 2x - 2yi = 4 + 5i$$

$$(-2x - 2y) + (2x - 2y)i = 4 + 5i$$

Equating the real and imaginary parts

$$-2x - 2y = 4 \rightarrow \text{eqn - I}$$

$$2x - 2y = 5 \rightarrow \text{eqn - II}$$

Adding equations I and II

$$-2x - 2y + 2x - 2y = 4 + 5$$

$$-4y = 9 \quad \Rightarrow y = -\frac{9}{4}$$

Subtracting equations II from I

$$-2x - 2y - 2x + 2y = 4 - 5$$

$$-4x = -1 \quad \Rightarrow x = \frac{1}{4}$$

Question-2(v)

$$x - \frac{1}{x} = 7$$

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

$$x^3 + \frac{1}{x^3} - 3\left(x - \frac{1}{x}\right) = 343$$

$$x^3 + \frac{1}{x^3} - 3(7) = 343 \quad \because x - \frac{1}{x} = 7$$

$$x^3 + \frac{1}{x^3} = 343 + 21$$

$$x^3 + \frac{1}{x^3} = 364$$

Question-2(vi)

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

$$\frac{1}{x} = \frac{1}{-3 + \sqrt{2}}$$

$$\frac{1}{x} = \frac{1}{-3 + \sqrt{2}} \times \frac{-3 - \sqrt{2}}{-3 - \sqrt{2}}$$

$$\frac{1}{x} = \frac{-3 - \sqrt{2}}{(-3)^2 - (\sqrt{2})^2} = \frac{-3 - \sqrt{2}}{7} = -\frac{3 + \sqrt{2}}{7}$$

(b) $x + \frac{1}{x} = -3 + \sqrt{2} - \frac{3 + \sqrt{2}}{7}$

$$x + \frac{1}{x} = \frac{-21 + 7\sqrt{2} - 3 - \sqrt{2}}{7} = \frac{-24 + 6\sqrt{2}}{7}$$

(c) $x - \frac{1}{x} = -3 + \sqrt{2} + \frac{3 + \sqrt{2}}{7}$

$$x - \frac{1}{x} = \frac{-21 + 7\sqrt{2} + 3 + \sqrt{2}}{7} = \frac{-18 + 8\sqrt{2}}{7}$$

(d) $x^2 + \frac{1}{x^2} = (-3 + \sqrt{2})^2 + \left(-\frac{3 + \sqrt{2}}{7}\right)^2$

$$x^2 + \frac{1}{x^2} = 9 + 2 - 6\sqrt{2} + \frac{9 + 2 + 6\sqrt{2}}{49}$$

$$x^2 + \frac{1}{x^2} = 11 - 6\sqrt{2} + \frac{11 + 6\sqrt{2}}{49}$$

$$x^2 + \frac{1}{x^2} = \frac{550 - 288\sqrt{2}}{49}$$

Question-2(vii)

$$2x^2 + 7x + \frac{6}{x}$$

| | |
|-------------|--|
| $2x^2$ | $4x^4 + 28x^3 + 49x^2 + 24x + 84 + \frac{36}{x^2}$ $\pm 4x^4$ |
| $4x^2 + 7x$ | $28x^3 + 49x^2 + 24x + 84 + \frac{36}{x^2}$ $\pm 28x^3 \pm 49x^2$ |

$$4x^2 + 14x + \frac{6}{x} \quad 24x + 84 + \frac{36}{x^2}$$

$$\pm 24x \pm 84 \pm \frac{36}{x^2}$$

0

$$\sqrt{4x^4 + 28x^3 + 49x^2 + 24x + 84 + \frac{36}{x^2}} = \pm \left(2x^2 + 7x + \frac{6}{x}\right)$$

Question-2(viii)

$$x^2 + 4x - 12 = x^2 + 6x - 2x - 12 = x(x + 6) - 2(x + 6) = (x + 6)(x - 2)$$

$$x^2 - 4 = (x + 2)(x - 2)$$

$$x^3 - 2^3 = (x - 2)(x^2 + 2x + 4)$$

$$\text{H.C.F} = (x - 2)$$

Question-2(ix)

$$P(x) = x^3 - 2x^2 - 5x + 6$$

$$\text{At } x = 1$$

$$P(1) = 1 - 2 - 5 + 6 = 0$$

$x - 1$ is a factor of $P(x)$

$$\begin{array}{r} x-1 \overline{) x^3 - 2x^2 - 5x + 6} \\ \underline{\pm x^3 \mp x^2} \\ -x^2 - 5x + 6 \\ \underline{\mp x^2 \pm x} \\ -6x + 6 \\ \underline{\mp 6x \pm 6} \\ 0 \end{array}$$

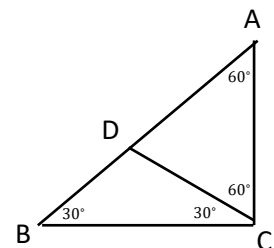
$$P(x) = (x - 1)(x^2 - x - 6)$$

$$P(x) = (x - 1)(x - 3)(x + 2)$$

Question-2(x)

Given: In $\triangle ABC$, $\angle C = 90^\circ$, $\angle A = 60^\circ$

To Prove: $\overline{BC} = \frac{1}{2} \overline{AB}$



Construction: At C construct $\angle BCD = 30^\circ$. Let \overline{CD} cuts \overline{AB} at D.

Proof:

Statements

Reasons

In $\triangle ADC$, $\angle A = 60^\circ$

$\angle CDA = 60^\circ$

$\therefore \triangle ADC$ is equilateral

$$\overline{AC} = \overline{CD} = \overline{AD}$$

$$\overline{AB} = \overline{BD} + \overline{AD}$$

$$\overline{AB} = \overline{DC} + \overline{AC}$$

$$\overline{AB} = \overline{AC} + \overline{AC}$$

$$\overline{AB} = 2\overline{AC}$$

$$\overline{AC} = \frac{1}{2}\overline{AB}$$

Given

$$m\angle BCD + m\angle CDA = 90^\circ$$

$\triangle BDC$ is isosceles

$$\overline{BD} = \overline{DC} \text{ \& } \overline{AD} = \overline{AC}$$

Question-2(xi)

A(1, 1), B(3, 1), C(4, 3)

$$|\overline{AB}|^2 = (3 - 1)^2 + (1 - 1)^2 = 2$$

$$|\overline{BC}|^2 = (4 - 3)^2 + (3 - 1)^2 = 5$$

$$|\overline{AC}|^2 = (4 - 1)^2 + (3 - 1)^2 = 13$$

$$\text{Since } |\overline{AB}|^2 + |\overline{BC}|^2 = 2 + 5 = 7 \neq |\overline{AC}|^2$$

Hence ABC is not a right angled triangle.

Question-2(xii)

Given: In $\triangle ABC$

To Prove: (i) $m\overline{AB} + m\overline{AC} > m\overline{BC}$

(ii) $m\overline{AB} + m\overline{BC} > m\overline{AC}$

(iii) $m\overline{BC} + m\overline{AC} > m\overline{AB}$

Construction: Take a point D on \overline{CA} such that $\overline{AD} = \overline{AB}$. Join B to D.

Proof:

Statements

In $\triangle ABD$

$$\angle 1 \cong \angle 2$$

$$m\angle DBC > m\angle 1 \quad \text{eqn(i)}$$

$$m\angle DBC > m\angle 2 \quad \text{eqn(ii)}$$

$$\text{In } \triangle DBC \quad \text{eqn(iii)}$$

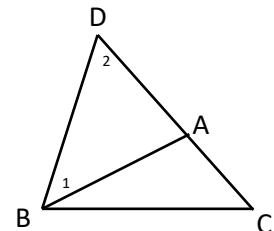
Reasons

Given

Construction

$$m\angle DBC + m\angle 1 + m\angle ABC$$

from (i) and (ii)



$$m\overline{DC} > m\overline{BC}$$

from (iii)

$$m\overline{AD} + m\overline{AC} > m\overline{BC}$$

$$m\overline{CD} = m\overline{AD} + m\overline{AC}$$

$$\text{Hence } m\overline{AB} + m\overline{AC} > m\overline{BC}$$

$$m\overline{AD} = m\overline{AB}$$

Similarly

$$m\overline{AB} + m\overline{BC} > m\overline{AC}$$

$$m\overline{BC} + m\overline{AC} > m\overline{AB}$$

Question-2(xiii)

$$A(2, 4), B(4, 4), C(-1, 3), D(-3, 3)$$

$$|\overline{AB}| = \sqrt{(4-2)^2 + (4-4)^2} = 2$$

$$|\overline{DC}| = \sqrt{(-1+3)^2 + (3-3)^2} = 2$$

$$|\overline{AD}| = \sqrt{(-3-2)^2 + (3-4)^2} = \sqrt{26}$$

$$|\overline{BC}| = \sqrt{(-1-4)^2 + (3-4)^2} = \sqrt{26}$$

$$\text{Since } |\overline{AB}| = |\overline{DC}| \text{ and } |\overline{AD}| = |\overline{BC}|$$

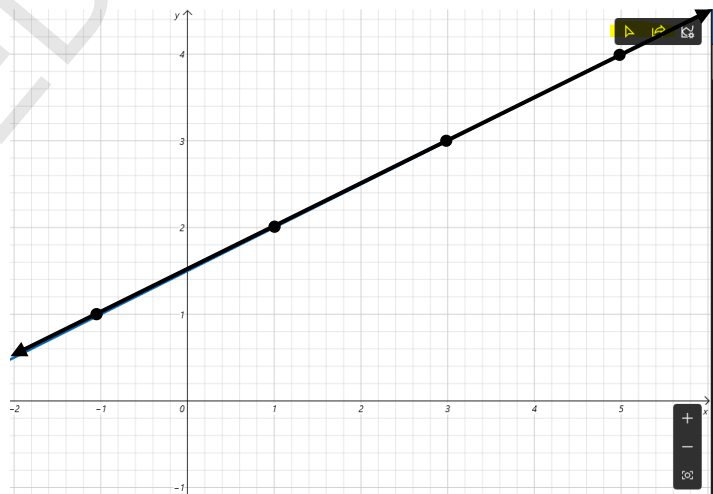
i.e. opposite sides of the quadrilateral ABCD are equal.

Hence ABCD is a parallelogram.

Question-2(xiv)

$$2y - x - 3 = 0$$

| | | | | |
|---|----|---|---|---|
| x | -1 | 1 | 3 | 5 |
| y | 1 | 2 | 3 | 4 |



SECTION-C

Q3. (a) $\left| \frac{x+8}{12} \right| = \frac{x-1}{5}$

$$\frac{x+8}{12} = +\left(\frac{x-1}{5}\right)$$

$$12(x-1) = 5(x+8)$$

$$12x - 12 = 5x + 40$$

$$12x - 5x = 40 + 12$$

$$7x = 52$$

$$x = \frac{52}{7}$$

$$\text{Solution set} = \left\{ \frac{52}{7}, -\frac{28}{17} \right\}$$

$$\frac{x+8}{12} = -\left(\frac{x-1}{5}\right)$$

$$12(x-1) = -5(x+8)$$

$$12x - 12 = -5x - 40$$

$$12x + 5x = 12 - 40$$

$$17x = -28$$

$$x = -\frac{28}{17}$$

$$(b) 2 \leq \frac{2}{3} - 4x < 3 - 5x$$

Multiply by 3

$$6 \leq 2 - 12x < 9 - 15x$$

$$6 \leq 2 - 12x$$

$$12x \leq 2 - 6$$

$$12x \leq -4$$

$$x \leq -\frac{1}{3}$$

$$2 - 12x < 9 - 15x$$

$$15x - 12x < 9 - 2$$

$$3x < 7$$

$$x < \frac{7}{3}$$

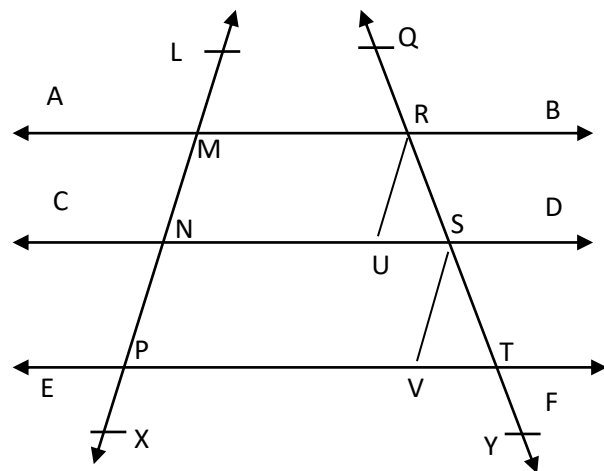
$$\text{Solution Set} = \left\{ x \mid -\frac{1}{3} \geq x < \frac{7}{3} \right\}$$

Q4

Statement: If three or more parallel lines make congruent segments on transversal, they also intercept congruent segments on any other

line that cuts them.

Figure:



Given: $\overline{AB} \parallel \overline{CD} \parallel \overline{EF}$

The transversal \overline{LX} intersects \overline{AB} , \overline{CD} and \overline{EF} at the points M, N and P respectively, such that $\overline{MN} \cong \overline{NP}$. The transversal \overline{QY} intersects them at points R, S and T respectively.

To Prove: $\overline{RS} = \overline{ST}$

Construction: From R, draw $\overline{RU} \parallel \overline{LX}$, which meets \overline{CD} at U. From S, draw $\overline{SV} \parallel \overline{LX}$ which meets \overline{EF} at V. As shown in the figure let the angles be labelled as $\angle 1, \angle 2, \angle 3$ and $\angle 4$.

Proof:

| Statements | Reasons |
|--|---|
| MNUR is a parallelogram. | $\overline{RU} \parallel \overline{LX}$, $\overline{AB} \parallel \overline{CD}$ |
| $\overline{MN} \cong \overline{RU} \rightarrow (i)$ | Opposite sides of a \parallel gram |
| Similarly, | |
| $\overline{NP} \cong \overline{SV} \rightarrow (ii)$ | |
| But $\overline{MN} \cong \overline{NP} \rightarrow (iii)$ | Given |
| $\therefore \overline{RU} \cong \overline{SV}$ | |
| Also $\overline{RU} \parallel \overline{SV}$ | From (i), (ii) and (iii) |
| $\therefore \angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$ | each is $\parallel \overline{LX}$ |
| In $\Delta RUS \leftrightarrow \Delta SVT$ | Corresponding angles |
| $\overline{RU} \cong \overline{SV}$ | Proved |
| $\angle 1 \cong \angle 2$ | Proved |
| $\angle 3 \cong \angle 4$ | Proved |
| $\Delta RUS \cong \Delta SVT$ | S.A.A \cong S.A.A |
| Hence $\overline{RS} = \overline{ST}$ | Corresponding sides of congruent triangles. |

Q5.

Let cost of chair = x

Let cost of Table = y

According to First condition

$$x = \frac{y}{2} + 3$$

$$\Rightarrow 2x = y + 6 \Rightarrow 2x - y = 6 \text{ --- (1)}$$

According to 2nd condition

$$3x + y = 54 \text{ --- (2)}$$

These equations can be written in form of matrices as ;

$$\begin{bmatrix} 2 & -1 \\ 3 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 6 \\ 54 \end{bmatrix}$$

$$\text{Let } A = \begin{bmatrix} 2 & -1 \\ 3 & 1 \end{bmatrix}, X = \begin{bmatrix} x \\ y \end{bmatrix}, B = \begin{bmatrix} 6 \\ 54 \end{bmatrix}$$

$$\therefore AX = B \Rightarrow X = A^{-1}B \text{ --- (3)}$$

$$\text{Now } |A| = \begin{vmatrix} 2 & -1 \\ 3 & 1 \end{vmatrix} = 2(1) - (-1 \times 3) = 5 \neq 0 \text{ --- (4)}$$

$$\text{Adj } A = \begin{bmatrix} 1 & 1 \\ -3 & 2 \end{bmatrix} \text{ --- (5)}$$

$$A^{-1} = \frac{\text{Adj } A}{|A|} \text{ --- (6)}$$

Using Equation (4) and Equation (5) in Equation (6)

$$A^{-1} = \frac{1}{5} \begin{bmatrix} 1 & 1 \\ -3 & 2 \end{bmatrix} \dots (6)$$

Putting the values in Equation (3)

$$\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{5} \begin{bmatrix} 1 & 1 \\ -3 & 2 \end{bmatrix} \begin{bmatrix} 6 \\ 54 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{5} \begin{bmatrix} 6 + 54 \\ -18 + 108 \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{5} \begin{bmatrix} 60 \\ 90 \end{bmatrix} \Rightarrow \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 12 \\ 18 \end{bmatrix}$$

By definition of equal matrices their corresponding elements are equal

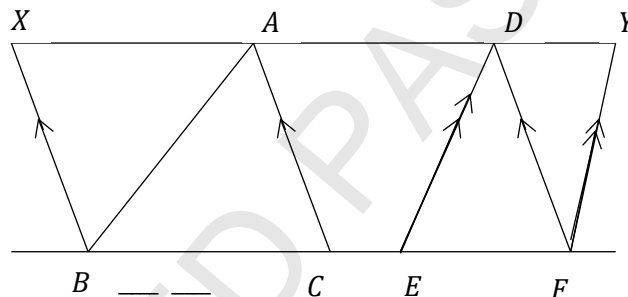
So $x = 12$, $y = 18$

\therefore Cost of chair = Rs 12 and Cost of table = Rs 18

Q6.

Statement: Triangles on equal bases and of equal altitudes are equal in area.

Figure:



Given: As ABC, DEF on equal bases $\overline{BC}, \overline{EF}$ and having equal altitudes.

To prove: Area of $\triangle ABC =$ Area of $\triangle DEF$

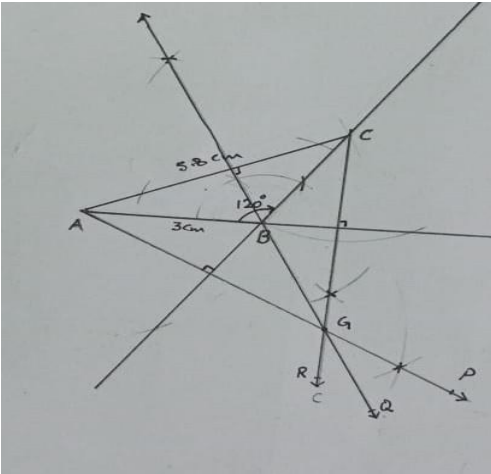
Construction: Place the $\triangle s$ ABC and DEF so that their equal bases \overline{BC} and \overline{EF} are on the same straight lines $BCEF$ and their vertices on the same side of it. Draw $\overline{BX} \parallel \overline{CA}$ and $\overline{FY} \parallel \overline{ED}$ meeting AD produces in X and Y , respectively.

Proof:

| Statements | Reasons |
|--|---|
| $\triangle ABC, \triangle DEF$ are between the same parallels | Their altitudes are equal (Given). |
| $\therefore XADY$ is parallel to $BCEF$ | |
| \therefore Area of $\parallel gm BCAX =$ Area of $\parallel gm EFYD \rightarrow (i)$ | These $\parallel gms$ are on equal bases and between the same parallel lines. |
| But, Area of $\triangle ABC = \frac{1}{2}(\text{Area of } \parallel gm BCAX) \rightarrow (ii)$ | Diagonals of a $\parallel gm$ bisect it. |
| And Area of $\triangle DEF = \frac{1}{2}(\text{Area of } \parallel gm EFYD) \rightarrow (iii)$ | |
| \therefore Area of $\triangle ABC =$ Area of $\triangle DEF$ | From (i), (ii) and (iii) |

Q7

$m\overline{AB} = 3\text{cm}$, $m\angle B = 120^\circ$, $m\overline{BC} = 5.8\text{cm}$



Construction Steps:

- a. Draw $m\overline{AB} = 3\text{cm}$
- b. Using pair of compasses to draw $m\angle B = 120^\circ$.
- c. With A as centre draw an arc of radius 5.8 cm that cuts $m\angle B$ at C.
- d. ΔABC is completed.
- d. Construct \overline{AP} altitude from vertex A.
- e. Construct \overline{BQ} altitude from vertex B.
- f. Construct \overline{CR} altitude from vertex C.
- g. The altitudes intersect at point G.
i.e. altitudes of ΔABC are concurrent.