SSC PUBLIC EXAMINATIONS 2024-25

MATHEMATICS (SCERT Modal paper I)

(ENGLISH VERSION)

Time: 3 Hours 15 Minutes **Max. Marks: 100**

Instructions:

1. In the duration of 3hours 15 minutes, 15 minutes of time is allotted to read the question paper.
2. All answers shall be written in the answer booklet only.
3. Question paper consists of 4 Sections and 33 questions.
4. Internal choice is available in section - IV only.
5. Answers shall be written neatly and legibly.

SECTION-I $12 \times 1 = 12$ M

Note: **i) Answer all the questions in one word or phrase.**

ii) Each question carries 1 mark.

1. **Find the LCM of 6,20**

2	6
3	3
	1

2	20
2	10
5	5
	1

Sol: $6 = 2^1 \times 3^1$

$20 = 2 \times 2 \times 5 = 2^2 \times 5^1$.

$\text{LCM}(6, 20) = 2^2 \times 3^1 \times 5^1 = 60$

2. **Assertion: The polynomial $x^3 - 2x^2 - 7x + 12$ is cubic polynomial**

Reason: Because the degree of polynomial is 3

(A) Both Assertion and Reason are true, Reason is supporting the assertion.

(B) Both Assertion and Reason are true, but Reason is not supporting the assertion

(C) Assertion is true, but the reason is false

(D) Assertion is false, but the reason is true

Sol: A

3. **Linear equations in two variables can be represented graphically is**

Sol: A straight line.

4. **Match the following**

(1) n^{th} term of AP a, a+d........ [ ](P) $\frac{n}{2}[2a + (n-1)d]$

(2) Sum of 'n' terms of AP whose first term 'a' and last term l [ ](Q) a+(n-1) d

(3) Sum of 'n' terms of AP [ ] (R) $\frac{n}{2}(a+l)$

(A) 1 →P,2 →Q,3 →R

(B) 1→ P,2 →R,3→ Q

(C) 1 →Q,2 →P,3→ R

(D) 1→ Q,2→ R,3→ P

Sol: D

5. **Statement-I: If two triangles are similar then their corresponding sides are proportional.**

Statement-II: If two triangles have proportional corresponding sides, then they are similar

(A) Both statements I and II are true

(B) Statement I is true, but statement II is false

(C)Statement I is false but Statement II is true

(D) Both statements I and II are false

Sol: A

6. **The angle of depression of a ship from the top of a light house is 45º If the height of the light house is 50m, the distance of the ship from the light house is**

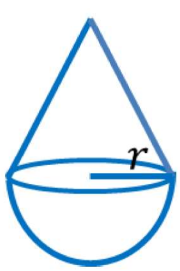
Sol: 50m

7. **How many tangents can be drawn from an external point to a circle?**

Sol: Two(2)

8. **Draw a hemisphere resting on the base of a right circular cone (both having same base radius 'r')**

Sol:



9. **If P(E)=0.3, what is the probability of P($\bar{E}$)**

Sol: $P(\bar{E}) = 1 - P(E) = 1 - 0.3 = 0.7$

10. **Zero of the polynomial x^2-4x+ 4 is**

(A) 1 (B) 2 (C) 3 (D) 4 [ ]

Sol: B

11. If tan x^0=1, then what is the value of x^0

(A) 30^0 (B) 45^0 (C) 60° (D) 90° [ ]

Sol: B

12. If the roots of Quadratic equation $ax^2 + bx + c = 0$ ($a \neq 0$) are α and β then what is the value of α+β

(A) –b/a (B) b/a (C) c/a (D)- c/a [ ]

Sol: A

SECTION-II

Note: 1) Answer all the questions

2) Each question carries 2 marks

13. Find the surface area of a cuboid of dimensions 15cm, 10cm and 3.5cm

Sol: $l = 15\ cm, b = 10cm, h = 3.5\ cm$

The surface area of the cuboid

$= 2(lh + bh + lb)$

$= 2(15 \times 3.5 + 10 \times 3.5 + 15 \times 10)cm^2$

$= 2(52.5 + 35 + 150)cm^2$

$= 2(237.5)cm^2$

$=$ **$475\ \mathbf{cm^2}$**

14. Find a Quadratic polynomial whose sum and product of zeroes are -1/4 and 1/4respectively?

Sol: $\alpha + \beta = -\frac{1}{4}$

$\alpha\beta = \frac{1}{4}$

Quadratic polynomial p(x) $= k[x^2 - (\alpha + \beta)x + \alpha\beta]$

$= k\left[x^2 - \left(-\frac{1}{4}\right)x + \frac{1}{4}\right]$

$= k\left[x^2 + \frac{1}{4}x + \frac{1}{4}\right]$

p(x) $= 4 \times \left[x^2 + \frac{1}{4}x + \frac{1}{4}\right]$ $(when\ k = 4)$

$= 4x^2 + x + 1$

15. $(x+1)^2=2(x-3)$ check whether Quadratic equation is or not?

Sol: $(x+1)^2 = 2(x-3)$

$\Rightarrow x^2 + 2x + 1 = 2x - 6$

$\Rightarrow x^2 + 2x + 1 - 2x + 6 = 0$

$\Rightarrow x^2 + 7 = 0$

It is of the form $ax^2 + bx + c = 0$ $(a = 1, b = 0, c = 7)$

The given equation is a quadratic equation.

16. **Write A.A.A. criteria of similarity of triangle.**

Sol: The three angles of one triangle are equal to the three angles of another triangle then the two triangles are similar.

17. **The midpoint of the line segment joining the points.(tan45°, cot90°) (sin0º, tan45°) is**

Sol: .(tan45°, cot90°)=(1,0) and (sin0º, cot45°)=(0,1)

$$\text{Midpoint} = \left(\frac{1+0}{2}, \frac{0+1}{2}\right) = \left(\frac{1}{2}, \frac{1}{2}\right)$$

18. **Express the ratio of Sec A, tan A in terms of Sin A**

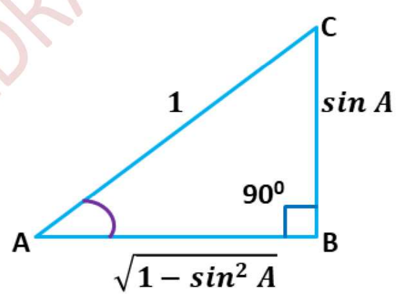
Sol: $sin^2 A + cos^2 A = 1$

$cos^2 A = 1 - sin^2 A$

$\cos A = \sqrt{1 - sin^2 A}$

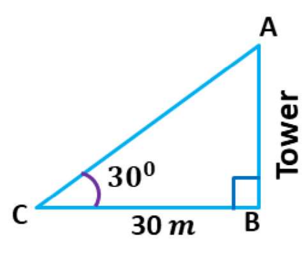
$$\sec A = \frac{1}{\cos A} = \frac{1}{\sqrt{1 - sin^2 A}}$$

$$\tan A = \frac{\sin A}{\cos A} = \frac{\sin A}{\sqrt{1 - sin^2 A}}$$



19. **Draw the diagram for the following situation.**
An angle of elevation of top of a tower from a point on the ground which is 30m away from the foot of the tower is 30^0.

Sol:



20. **Calculate the length of tangent from a point 12cm away from the centre of a circle of radius 5cm.**

Sol: Distance from centre to point(d)=12 cm

Radius of the circle(r) =5 cm

The length of tangent $= \sqrt{d^2 - r^2} = \sqrt{12^2 - 5^2} = \sqrt{144 - 25} = \sqrt{119}\ cm$

SECTION-III

Note: 1) Answer all the questions

2) Each question carries 4 marks

21. A die is rolled. Find the probability of getting (i) a prime number (ii) a number greater than 4 (iii) factors of 6 (iv) an even prime

Sol: $P(E) = \dfrac{Number\ of\ outcomes\ favourable\ to\ E}{Number\ of\ all\ possible\ outcomes} = \dfrac{n(E)}{n(S)}$

A die is thrown once then S={1,2,3,4,5,6}   n(S)=6

(i) A= The event "getting prime number"

Favourable outcomes to A are 2,3,5

n(A)=3

$P\ (A) = \frac{3}{6} = \frac{1}{2}$

(ii) B= The event "getting a number greater than 4"

Favourable outcomes to B are 5,6

n(B)=2

$P\ (B) = \frac{2}{6} = \frac{1}{3}$

(iii) C= The event "getting factors of 6"

Favourable outcomes to C are 1,2,3,6

n(C)=4

$P\ (C) = \frac{4}{6} = \frac{2}{3}$

(iv) D= The event "getting an even prime"

Favourable outcomes to D is 2

n(D)=1

$P\ (D) = \frac{1}{6} = \frac{1}{6}$

22. Write 3 formulae to find the mean of grouped data explain the terms involved in it.

Sol: **(i) Mean for grouped data- Direct Method:**

$$Mean\ (\bar{x}) = \frac{\sum f_i x_i}{\sum f_i}$$

$f_i = frequency\ of\ i^{th}\ class$

$x_i = class\ mark\ (mid\ value)\ of\ i^{th}\ class$

(ii) Mean for grouped data- Assumed Mean Method:

$$Mean(\bar{x}) = a + \frac{\sum f_i d_i}{\sum f_i}$$

$a = assumed\ mean\ (choose\ one\ among\ the\ x_i's).$

$f_i = frequency\ of\ i^{th}\ class.$

$d_i = x_i - a.$

$x_i = class\ mark\ (mid\ value)\ of\ i^{th}\ class.$

(iii) Mean for grouped data- Step-deviation;

$$Mean(\bar{x}) = a + \left(\frac{\sum f_i u_i}{\sum f_i}\right) \times h$$

$a = assumed\ mean\ (choose\ one\ among\ the\ x_i's).$

$f_i = frequency\ of\ i^{th}\ class.$

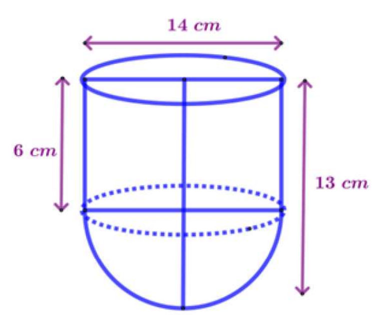
$u_i = \frac{x_i - a}{h}.$

$x_i = class\ mark\ (mid\ value)\ of\ i^{th}\ class$

$h = class\ size\ .$

23. **A vessel is in the form of a hollow hemisphere mounted by a hollow cylinder. The diameter of the hemisphere is 14cm and the total height of the vessel is 13cm. Find the inner surface area of vessel.**

Sol: Hemisphere:



$d = 14\ cm; r = 7\ cm$

Cylinder:

$d = 14\ cm; r = 7\ cm; h = 13 - 7 = 6\ cm$

Inner surface area of the vessel

= CSA of the hemisphere + CSA of the cylinder

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

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

$= 2 \times \frac{22}{7} \times 7 \times (7 + 6)$

$= 44 \times 13 = 572\ cm^2$

24. Find two consecutive positive integers, sum of whose squares is 365.

Sol: Let the two consecutive positive integers be $x, x+1$.

Sum of whose squares $= 365$

$x^2 + (x+1)^2 = 365$

$x^2 + x^2 + 2x + 1 - 365 = 0$

$2x^2 + 2x - 364 = 0$

$x^2 + x - 182 = 0$

$x^2 - 13x + 14x - 182 = 0$

$x(x-13) + 14(x-17) = 0$

$(x-13)(x+14) = 0$

$x = 13 \quad or \quad x = -14$

$\therefore x = 13$ (since x is a positive integer so $x \neq -14$)

The required two consecutive positive integers are 13 and 14.

25. Prove that $\frac{1+\sec A}{\sec A} = \frac{sin^2 A}{1-\cos A}$

Sol: RHS $= \dfrac{sin^2 A}{1-\cos A} = \dfrac{1-\cos^2 \mathrm{A}}{1-\cos A}$

$$= \frac{(1+\cos A)(1-\cos A)}{1-\cos A}$$

$$= 1 + \cos A$$

$$= 1 + \frac{1}{\sec A}$$

$$= \frac{\sec A + 1}{\sec A}$$

$$= \frac{1+\sec A}{\sec A} = \text{LHS}$$

26. Find the sum of first 24 terms of the list of numbers whose nth term is given by $a_n = 3 + 2n$

Sol: $a_n = 3 + 2n$

$a_1 = 3 + 2 \times 1 = 3 + 2 = 5$

$a_2 = 3 + 2 \times 2 = 3 + 4 = 7$

$a_3 = 3 + 2 \times 3 = 3 + 6 = 9$

List of numbers are 5,7,9,...... clearly it is an AP

$a = 5, d = 7 - 5 = 2, n = 24$

$S_n = \frac{n}{2}[2a + (n-1)d]$

$S_{24} = \frac{24}{2}[10 + (24-1) \times 2]$

$= 12[10 + 23 \times 2]$

$= 12 \times 56$

$= 672$

27. Prove that the parallelogram circumscribing a circle is a Rhombus

Sol: Let ABCD is a parallelogram circumscribing a circle.

Let P,Q,R,S be points of contact

We know that the lengths of tangents drawn from an external point to a circle are equal.

A is external point and AP, AS are tangents then

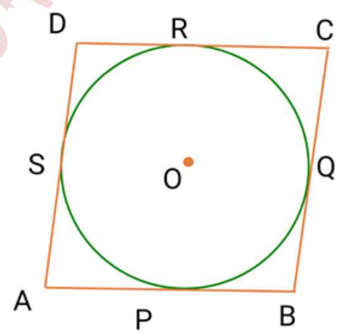
AP = AS ------- (1)

Similarly

BP = BQ------- (2)

CR = CQ------ (3)

DR = DS ------ (4)



(1)+ (2) +(3)+(4) we get

AP+BP+CR+DR = AS+BQ+CQ+DS

(AP+BP)+ (CR+DR) = (BQ+CQ)+ (AS+DS)

AB + CD = BC + DA

AB + AB = BC + BC (opposite sides of a parallelogram are equal AB=CD and BC=DA)

2 AB = 2 BC $\Rightarrow$ AB = BC

$\therefore$ AB = BC = CD = DA .

Hence ABCD is a rhombus.

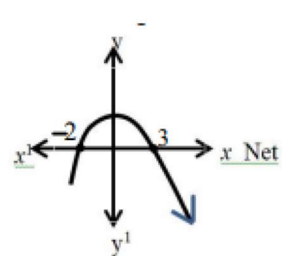
28. A Javelin is thrown over a net in the court and its' path is shown in figure.

(A) Name the shape of the path in which the javelin travelled

(B) How many zeroes are there for the polynomial

(C) Write the zeroes of the polynomial

(D) What is the product of zeroes of polynomial



Sol: (A) Parabola

(B) Two

(C) -2 and 3

(D) -2×3=-6

SECTION-IV

Note:1) Answer all the questions

2) Each question carries 8 marks

3) There is an internal choice of each question.

29.(a) Prove that $\sqrt{5}$ is irrational

Sol: Let us assume $\sqrt{5}$ is rational.

Then $\sqrt{5} = \frac{a}{b}$ (a, b *are coprimes*)

Squaring on both sides we get

p be a prime number .
If p divides a^2 *then p divides a*

$$5 = \frac{a^2}{b^2} \Rightarrow 5b^2 = a^2 \rightarrow (1)$$

$$\Rightarrow b^2 = \frac{a^2}{5}$$

$\Rightarrow$ 5 divides a^2

$\Rightarrow$ 5 divides a

We can write $a = 5c$ *for some integer c*

$$\Rightarrow a^2 = 25c^2$$

$\Rightarrow 5b^2 = 25c^2$ (from (1))

$$\Rightarrow b^2 = 5c^2$$

$$\Rightarrow c^2 = \frac{b^2}{5}$$

$\Rightarrow$ 5 divides b^2

$\Rightarrow$ 5 divides b

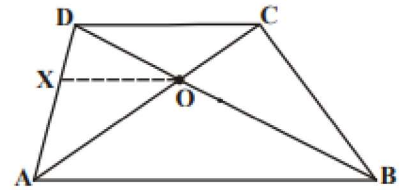
Therefore, both a *and* b have 5 as a common factor.

But this contradicts the fact that a *and* b are co-prime.

Thus our assumption is false.

So, we conclude that $\sqrt{5}$ is irrational.

(b) **The diagonals of a quadrilateral ABCD intersect each other at the point O such that $\frac{AO}{BO} = \frac{CO}{DO}$ Show that ABCD is a trapezium**



Sol: Given: In quadrilateral ABCD, $\frac{AO}{BO} = \frac{CO}{DO}$

RTP : ABCD is a trapezium.

Construction: Through 'O' draw a line parallel to AB which meets DA at X.

Proof : In ΔDAB, XO || AB (by construction)

$\Rightarrow \frac{AX}{XD} = \frac{BO}{OD}$ (by B.P.T) → (1)

But $\frac{AO}{BO} = \frac{CO}{DO}$ (*given*)

$\Rightarrow \frac{AO}{CO} = \frac{BO}{DO} \rightarrow (2)$

From (1) and (2)

$\frac{AX}{XD} = \frac{AO}{CO}$

In ΔADC, XO is a line such that $\frac{AX}{XD} = \frac{AO}{OC}$

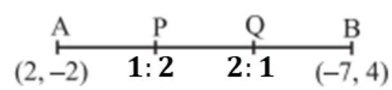
⇒ XO ∥ DC (From converse of BPT)

⇒ AB ∥ DC

In quadrilateral ABCD, AB || DC

⇒ ABCD is a trapezium

30.(a) **Find the coordinates of the points of trisection of the line segment joining the points A(2,-2) and B (-7, 4)**



Sol: A(2,–2) and B(–7, 4).
(x_1, y_1) (x_2, y_2)

Let P divides AB internally in the ratio 1 : 2.= $m_1 : m_2$

$$P(x, y) = \left(\frac{m_1x_2 + m_2x_1}{m_1 + m_2}, \frac{m_1y_2 + m_2y_1}{m_1 + m_2}\right)$$

$$= \left(\frac{1(-7) + 2(2)}{1 + 2}, \frac{1(4) + 2(-2)}{1 + 2}\right)$$

$$= \left(\frac{-7 + 4}{3}, \frac{4 - 4}{3}\right)$$

$$= \left(\frac{-3}{3}, \frac{0}{3}\right)$$

$= (-1,0)$

Let Q divides AB internally in the ratio 2:1=$m_1 : m_2$

$$Q(x, y) = \left(\frac{m_1x_2 + m_2x_1}{m_1 + m_2}, \frac{m_1y_2 + m_2y_1}{m_1 + m_2}\right)$$

$$= \left(\frac{2(-7) + 1(2)}{2 + 1}, \frac{2(4) + 1(-2)}{2 + 1}\right)$$

$$= \left(\frac{-14 + 2}{3}, \frac{8 - 2}{3}\right)$$

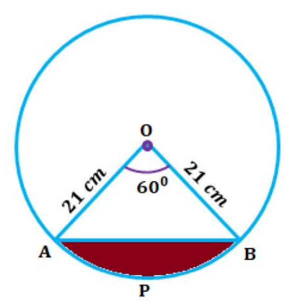
$$= \left(\frac{-12}{3}, \frac{6}{3}\right)$$

$$= (-4,2)$$

Required trisection points are P(-1, 0) and Q(-4, 2).

(b) In a circle of radius 21cm, an arc subtends an angle of 60º at the centre. Find(i) The length of the arc(ii) Area of sector formed by the arc(iii) Area of the segment formed by the corresponding chord.

Sol: Radius(r)=21 cm ,angle(θ)=60^0



(i)The length of the arc $= \frac{\theta}{360} \times 2\pi r$

$$= \frac{\cancel{60}}{\cancel{360}_{\cancel{6}_2}} \times \cancel{2} \times\times \frac{22}{\cancel{7}} \times \cancel{21}^{3}$$

$$= 22\ cm$$

(ii)area of the sector formed by the arc OAPB $= \frac{\theta}{360} \times \pi r^2$

$$= \frac{60}{360} \times \frac{22}{7} \times 21 \times 21$$

$$= 11 \times 21$$

$$= 231 cm^2$$

$(iii)\ \Delta AOB\ is\ a\ equilateral\ triangle\ with\ side\ (a) = 21\ cm$

Area of ΔAOB $= \frac{\sqrt{3}}{4}a^2 = \frac{\sqrt{3}}{4} \times 21 \times 21$

$$= \frac{441\sqrt{3}}{4}\ cm^2$$

The area of segment APB = Area of the sector OAPB − Area of ΔAOB

$$= \left(231 - \frac{441\sqrt{3}}{4}\right) \text{cm}^2$$

31.(a) One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting

(1) a king of red colour(2) a face card (3) a red face card(4) the jack of hearts(5) a spade(6) a queen of diamonds(7) an ace of black colour(8) not a face card

Sol: n(S)=52

$$\text{P(E)} = \frac{\text{Number of outcomes favourable to E}}{\text{Number of all possible outcomes}} = \frac{n(E)}{n(S)}$$

(1) A=The event "getting a king of red colour"

n(A)=2

$$P(A) = \frac{2}{52} = \frac{1}{26}$$

(2) B=The event "getting a face card"

n(B)=12

$$P(B) = \frac{12}{52} = \frac{3}{13}$$

(3) C=The event "getting a red face card"

n(C)=6

$$P(C) = \frac{6}{52} = \frac{3}{26}$$

(4) D=The event "getting the jack of hearts"

n(D)=1

$$P(D) = \frac{1}{52}$$

(5) E=The event "getting a spade"

n(E)=13

$$P(E) = \frac{13}{52} = \frac{1}{4}$$

(6) F=The event "getting a queen of diamonds"

n(F)=1

$$P(F) = \frac{1}{52}$$

(7) G=The event "getting an ace of black colour"

n(G)=2

$$P(G) = \frac{2}{52} = \frac{1}{26}$$

(8)H=The event "getting not a face card"

n(H)=52-12=40

$$P(H) = \frac{40}{52} = \frac{10}{13}$$

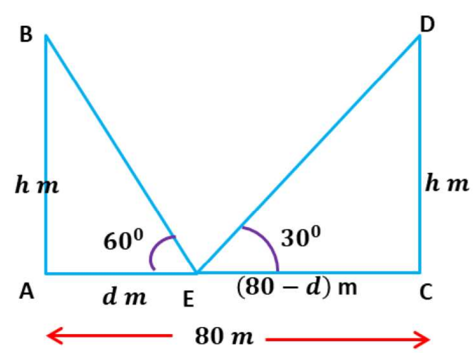
(b) Two poles of equal heights are standing opposite each other on either side of the road, which is 80m wide. From a point between them on the road, the angle of elevation of the top of the poles are 60 and 30º, respectively. find the height of the poles and the distances of the point from the poles.

Sol: Height of the pole=AB=CD= h m

Road wide=AC=80 m

E is the required point between A and C

AE=d m and EC=(80-d)m



$Fom\ \Delta BAE$

$$\tan 60^0 = \frac{h}{d}$$

$$\sqrt{3} = \frac{h}{d} \Rightarrow h = d\sqrt{3} \rightarrow (1)$$

$from\ \Delta DCE$

$$\tan 30^0 = \frac{h}{80-d}$$

$$\frac{1}{\sqrt{3}} = \frac{h}{80-d}$$

$$h = \frac{80-d}{\sqrt{3}} \rightarrow (2)$$

From (1) &(2)

$$d\sqrt{3} = \frac{80-d}{\sqrt{3}}$$

$$d\sqrt{3} \times \sqrt{3} = 80 - d$$

$3d = 80 - d$

$4d = 80$

$d = 20$

$80 - d = 80 - 20 = 60$

$From(1): h = 20\sqrt{3}$

$\therefore The\ height\ of\ the\ pole = 20\sqrt{3}\, m$

The distances of the point from the poles are 20 m and 60 m respectively.

32(a) The distribution below gives the weights of 30 students of a class. Find the mode weight of the students

Weight (in kg)	40-45	45-50	50-55	55-60	60-65	65-70	70-75
Number of students	2	3	8	6	6	3	2

Sol: The maximum frequency (f_1)=8. So, the modal class is 50-55.

Weight (in kg)	Number of students (f_i)
40-45	2
45-50	3→ f_0
l ←50-55	8→ f_1
55-60	6→ f_2
60-65	6
65-70	3
70-75	2

$l = 50, f_1 = 8,\ f_0 = 3, f_2 = 6, h = 5$

$$\text{Mode} = l + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right) \times h$$

$$= 50 + \left(\frac{8 - 3}{2 \times 8 - 3 - 6}\right) \times 5$$

$$= 50 + \left(\frac{5}{7}\right) \times 5$$

$$= 50 + \frac{25}{7} = 50 + 3.6 = 53.6$$

The mode weight of the students=53.6 kg

OR

(b) How many three digit numbers are divisible by 7

Sol: The three-digit numbers are divisible by 7 are

105,112, 119,……., 994

$a = 105, d = 7$

$let\ a_n = 994$

$a + (n-1)d = 994$

$105 + (n-1) \times 7 = 994$

$(n-1) \times 7 = 994 - 105 = 889$

$$n - 1 = \frac{889}{7} = 127$$

$n = 127 + 1 = 128$

$\therefore$ 128 three digit numbers are divisible by 7

33.(a) Form the pair of linear equation and find the solutions graphically 5 pencils and 7 pens together cost Rs. 50 whereas 7 pencils and 5 pens together cost Rs.46. find the cost of one pencil and that of one pen.

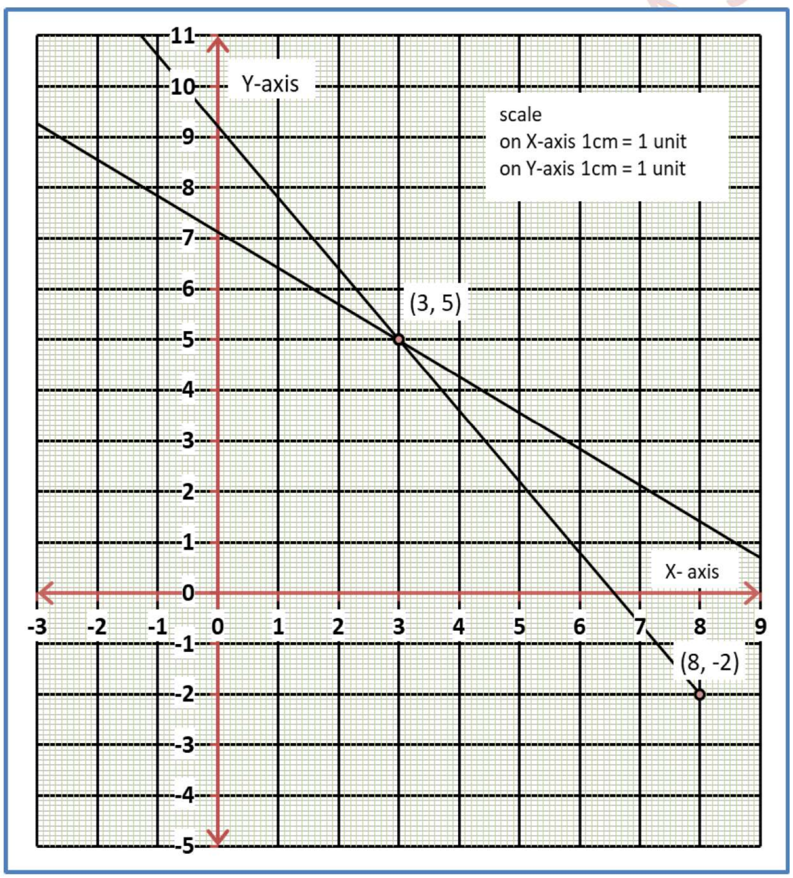
Sol: Let the cost of 1 pencil=₹ x and the cost of 1 pen=₹y

5 pencils + 7 pens = ₹ 50 ⇒ 5x + 7y = 50 → (1)

7 pencils + 5 pens = ₹ 46 ⇒ 7x + 5y = 46 → (2)

$5x+7y=50 \Rightarrow y=\frac{50-5x}{7}$		
x	$y=\frac{50-5x}{7}$	(x,y)
-4	$y=\frac{50-5(-4)}{7}=\frac{70}{7}=10$	$(-4,10)$
3	$y=\frac{50-5(3)}{7}=\frac{35}{7}=5$	$(3,5)$
10	$y=\frac{50-5(10)}{7}=\frac{0}{7}=0$	$(10,0)$

$7x+5y=46 \Rightarrow 5y=46-7x \Rightarrow y=\frac{46-7x}{5}$		
x	$y=\frac{46-7x}{5}$	(x,y)
-2	$y=\frac{46-7(-2)}{5}=\frac{60}{5}=12$	$(-2,12)$
3	$y=\frac{46-7(3)}{5}=\frac{25}{5}=5$	$(3,5)$
8	$y=\frac{46-7(8)}{5}=\frac{-10}{5}=-2$	$(8,-2)$



The two lines intersect at the point (3, 5)

So, x = 3, y = 7 is the required solution of the pair of linear equations.

i.e., the cost of 1 pencil=₹3 and the cost of 1 pen=₹5

(b) Solve the following equations graphically: i) 2x+y-6=0 ii) 4x-2y-4=0

Sol: $2x + y - 6 = 0$; $a_1 = 2$, $b_1 = 1, c_1 = -6$

$4x - 2y - 4 = 0$; $a_2 = 4$, $b_2 = -2$, $c_2 = -4$

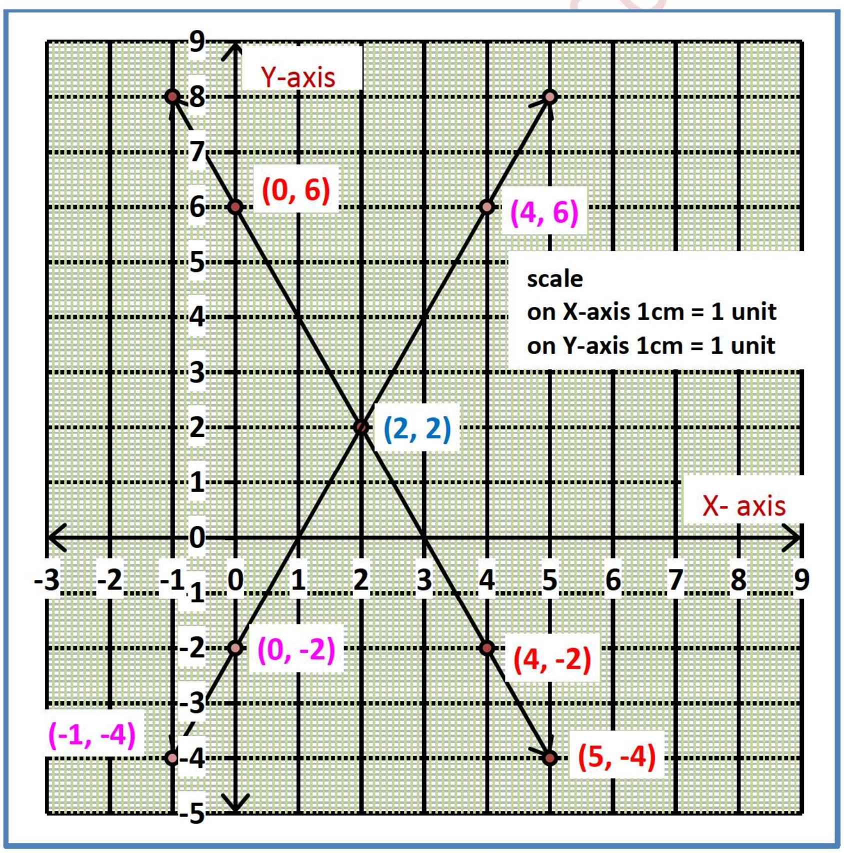
$\frac{a_1}{a_2} = \frac{2}{4} = \frac{1}{2}$; $\frac{b_1}{b_2} = \frac{1}{-2} = \frac{-1}{2}$; $\frac{c_1}{c_2} = \frac{-6}{-4} = \frac{3}{2}$

$\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \Rightarrow$ lines are intersecting and have one solution.

The pair of given equations are consistent

$2x + y - 6 = 0 \Rightarrow y = 6 - 2x$		
x	$y = 6 - 2x$	(x, y)
0	$y = 6 - 2 \times 0 = 6 - 0 = 6$	(0,6)
2	$y = 6 - 2 \times 2 = 6 - 4 = 2$	(2,2)
4	$y = 6 - 2 \times 4 = 6 - 8 = -2$	$(4, -2)$
5	$y = 6 - 2 \times 5 = 6 - 10 = -4$	$(5, -4)$

$4x - 2y - 4 = 0 \Rightarrow y = 2x - 2$		
x	$y = 2x - 2$	(x, y)
0	$y = 2 \times 0 - 2 = 0 - 2 = -2$	$(0, -2)$
2	$y = 2 \times 2 - 2 = 4 - 2 = 2$	(2,2)
4	$y = 2 \times 4 - 2 = 8 - 2 = 6$	(4,6)
-1	$y = 2 \times (-1) - 2 = -2 - 2 = -4$	$(-1, -4)$



Graphs intersect at (2,2)

Solution: x=2 and y=2