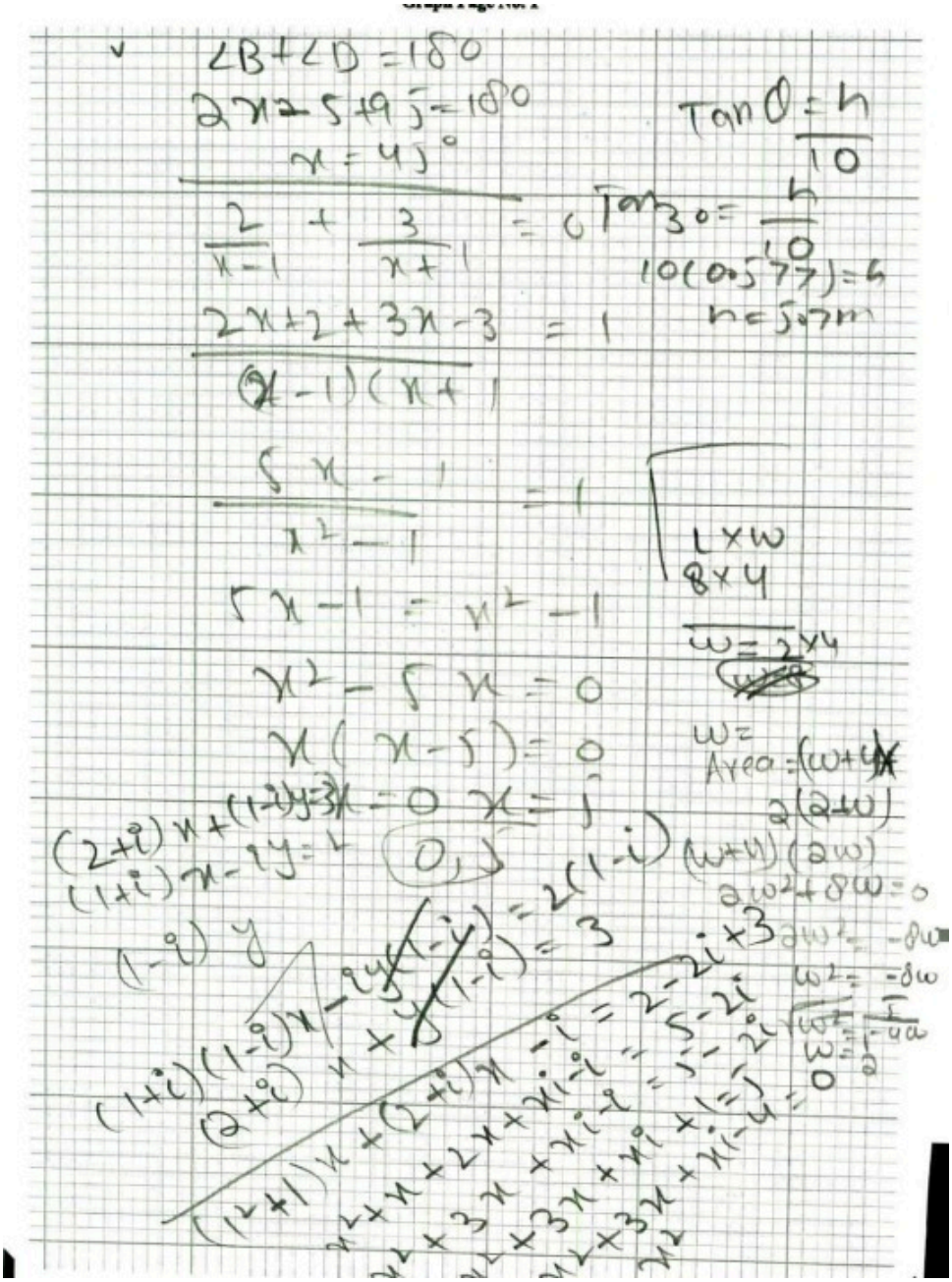
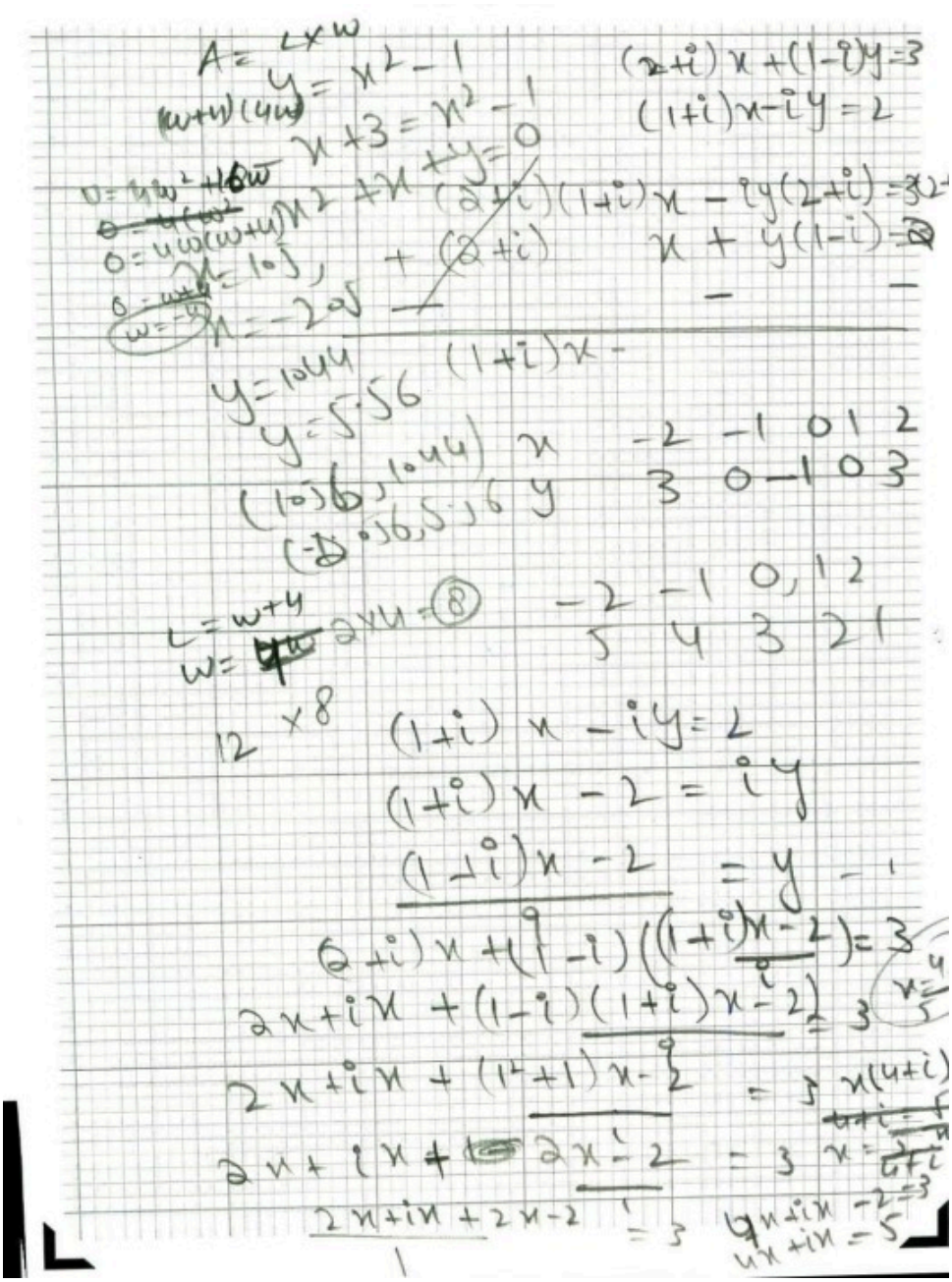
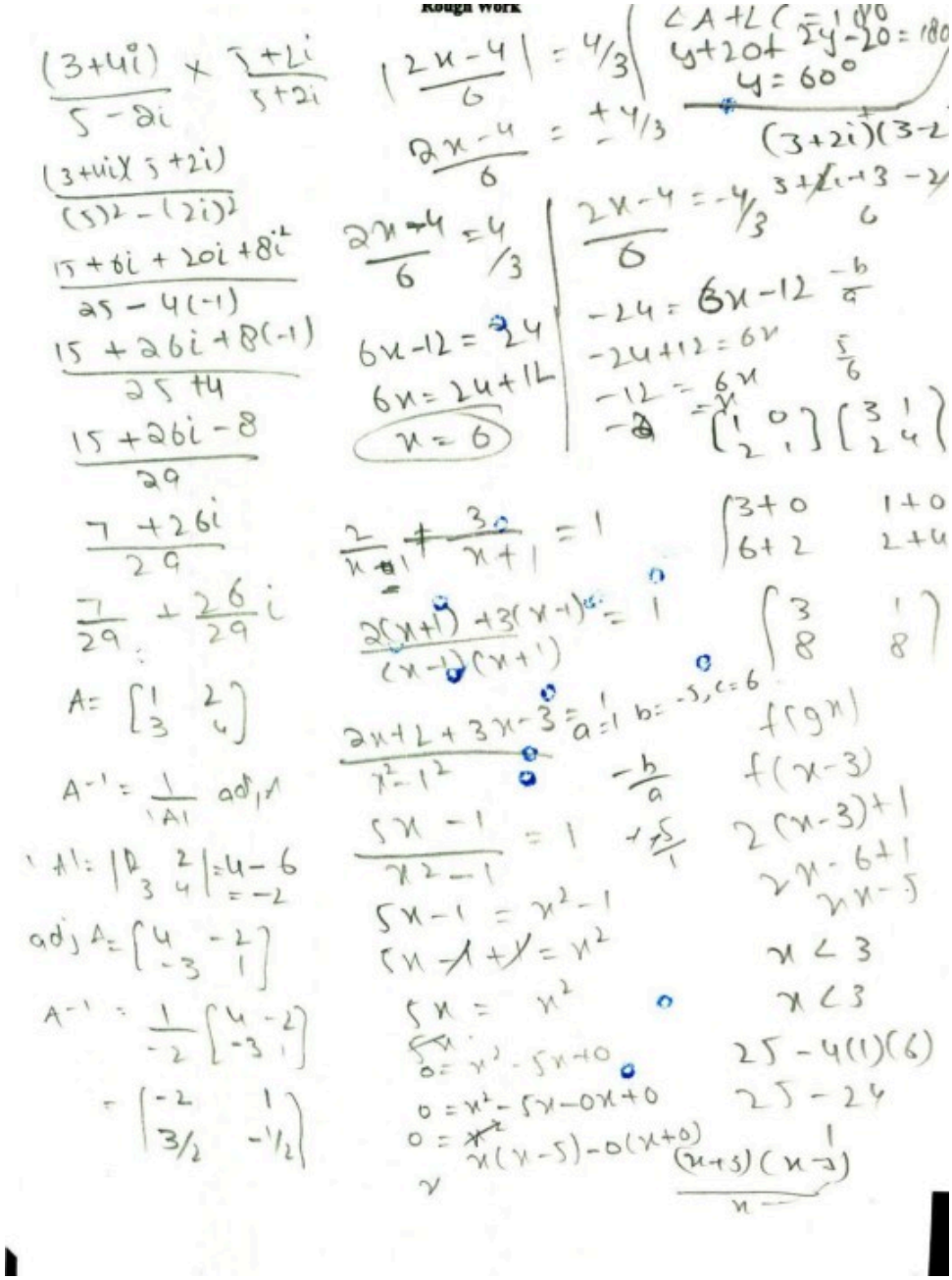

∠B+∠D=180
2x+5+9x=180
x=49°
2/(x-1) + 3/(x+1) = 6
2x+2+3x-3 = 1
(x-1)(x+1)
5x-1 = 1
x²-1
5x-1 = x²-1
x²-5x=0
x(x-5)=0
x=5
Tan θ = h/10
Tan 30 = h/10
10(0.577)=h
h=5.77m
L×W
8×4
ω=2×4
Area = (ω+4)(2+ω)
(ω+4)(2ω)
2ω²+8ω=0
(2+i)x+(1-2i)y=3x
(1+i)x-2y=4
(0,2)
(1-i)y
(1+i)(1-i)x
(2+i)x
(1+i)x+(2+i)x
x²+x+2x+xi-i=2-2i
x²+3x+xi-i=5-2i
x²+3x+xi-i=1-2i
x²+3x+xi-i=1-4i
ω²=-8ω
ω²+8ω=0
ω=-8
30


A = l × w
y = x² − 1
(w+4)(4w)
x + 3 = x² − 1
x² − x − y = 0
(2+i)x + (1−i)y = 3
(1+i)x − iy = 2
(2+i)(1+i)x − iy(2+i) = 3(2+i)
x + y(1−i) = 2
y = 10.44
y = 5.56
(10.56, 10.44)
(−2.56, 5.56)
x: −2 −1 0 1 2
y: 3 0 −1 0 3
x: −2 −1 0, 1 2
y: 5 4 3 2 1
l = w + 4
2x + 4 = 8
12 × 8
(1+i)x − iy = 2
(1+i)x − 2 = iy
(1−i)x − 2 = y
(2+i)x + (1−i)((1+i)x − 2) = 3
2x + ix + (1−i)(1+i)x − 2 = 3
2x + ix + (1² + 1)x − 2 = 3
2x + ix + 2x − 2 = 3
2x + ix + 2x − 2 = 3
4x + ix − 2 = 3
4x + ix = 5


Rough work
$\frac{(3+4i)}{5-2i} \times \frac{5+2i}{5+2i}$
$\frac{(3+4iX5+2i)}{(5)^2-(2i)^2}$
$\frac{15+6i+20i+8i^2}{25-4(-1)}$
$\frac{15+26i+8(-1)}{25+4}$
$\frac{15+26i-8}{29}$
$\frac{7+26i}{29}$
$\frac{7}{29}+\frac{26}{29}i$
$A=\begin{bmatrix}1&2\\3&4\end{bmatrix}$
$A^{-1}=\frac{1}{|A|}adjA$
$|A|=\begin{vmatrix}1&2\\3&4\end{vmatrix}=4-6=-2$
$adjA=\begin{bmatrix}4&-2\\-3&1\end{bmatrix}$
$A^{-1}=\frac{1}{-2}\begin{bmatrix}4&-2\\-3&1\end{bmatrix}$
$=\begin{bmatrix}-2&1\\3/2&-1/2\end{bmatrix}$
$\left|\frac{2x-4}{6}\right|=4/3$
$\frac{2x-4}{6}=+4/3$
$\frac{2x-4}{6}=4/3$
$6x-12=24$
$6x=24+12$
$x=6$
$\frac{2x-4}{6}=-4/3$
$-24=6x-12$
$-24+12=6x$
$-12=6x$
$x=-2$
$\frac{2}{x+1}+\frac{3}{x+1}=1$
$\frac{2(x+1)+3(x-1)}{(x-1)(x+1)}=1$
$\frac{2x+2+3x-3}{x^2-1^2}=1$
$\frac{5x-1}{x^2-1}=1$
$5x-1=x^2-1$
$5x=x^2$
$0=x^2-5x+0$
$0=x^2-5x-0x+0$
$0=x(x-5)-0(x+0)$
x
$\angle A+\angle C=180$
$y+20+2y-20=180$
$y=60^\circ$
$(3+2i)(3-2$
$3+2i-3-2$
$\begin{bmatrix}1&0\\2&1\end{bmatrix}\begin{bmatrix}3&1\\2&4\end{bmatrix}$
$\begin{bmatrix}3+0&1+0\\6+2&2+4\end{bmatrix}$
$\begin{bmatrix}3&1\\8&8\end{bmatrix}$
$a=1\ b=-5, c=6$
$-\frac{b}{a}$
$\frac{5}{1}$
$f(gx)$
$f(x-3)$
$2(x-3)+1$
$2x-6+1$
$2x-5$
$x<3$
$x<3$
$25-4(1)(6)$
$25-24$
$\frac{1}{(x+5)(x-1)}$
$x=$

Q. No. 2 Part (i)

Express the complex number $(3+4i) \div (5-2i)$ in the form $a+bi$

$= (3+4i) \div 5-2i$

$= \frac{3+4i}{5-2i}$

By rationalization

$= \frac{3+4i}{5-2i} \times \frac{5+2i}{5+2i}$

$= \frac{(3+4i)(5+2i)}{(5)^2-(2i)^2}$

$= \frac{15+6i+20i+8i^2}{25-4i^2}$

$= \frac{15+26i+8(-1)}{25-4(-1)}$

$= \frac{15-8+26i}{25+4}$

$= \frac{7+26i}{29}$

$= \frac{7}{29} + \frac{26}{29}i$

$a + b\,i$

$\boxed{\frac{7}{29} + \frac{26}{29}i}$

Q. No. 2 Part (ii)

Find inverse of given if it is possible

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

$$A^{-1} = \frac{1}{|A|} \text{adj } A$$

$$|A| = \begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix} = (1 \times 4) - (2 \times 3)$$

$$= 4 - 6$$

$$= -2 \neq 0$$

non singular

$$\text{adj } A = \begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$$

$$A^{-1} = \frac{1}{-2} \begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} 1/-2 \times 4 & 1/-2 \times -2 \\ 1/-2 \times -3 & 1/-2 \times 1 \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} -2 & 1 \\ 3/2 & -1/2 \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} -2 & 1 \\ 3/2 & -1/2 \end{bmatrix}$$

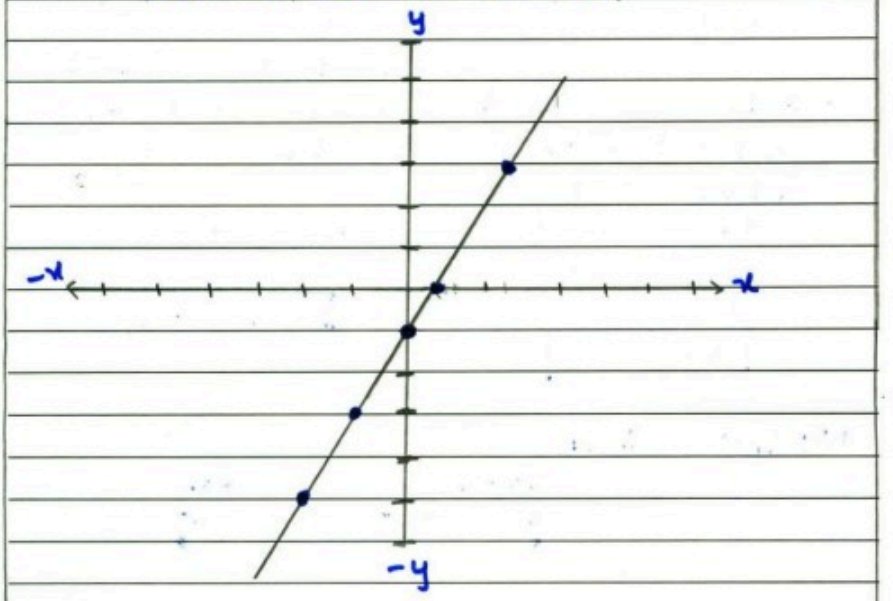
Q. No. 2 Part (iii)

Plot the graph of a linear equation function $y = 2x - 1$ for $x = -2, -1, 0, 1, 2$

$y = 2x - 1$

Table for graph.

x	-2	-1	0	1	2
y	-5	-3	-1	1	3



Linear function graph.

Q. No. 2 Part (iv) a) Solve the given equation
b) Express the solution on a number line.

$$\left|\frac{2x-4}{6}\right| = \frac{4}{3}$$

$$\frac{2x-4}{6} = \pm\frac{4}{3}$$

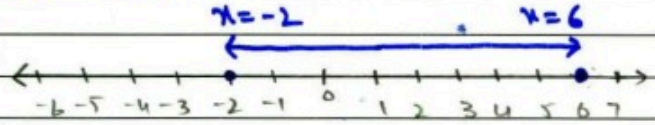
$$\frac{2x-4}{6} = \frac{4}{3}$$

$$6 \times 4 = 3(2x-4)$$
$$24 = 6x - 12$$
$$24+12 = 6x$$
$$36 = 6x$$
$$\frac{36}{6} = x$$
$$\boxed{x = 6}$$

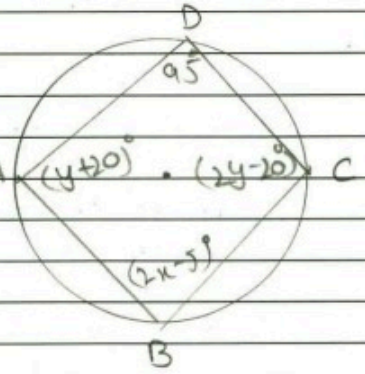
$$\frac{2x-4}{6} = -\frac{4}{3}$$

$$6 \times (-4) = 3(2x-4)$$
$$-24 = 6x - 12$$
$$-24+12 = 6x$$
$$-12 = 6x$$
$$\frac{-12}{6} = x$$
$$\boxed{x = -2}$$

Number Line:



Q. No. 2 Part (v) Find the value of x any y from the cyclic quadrilateral ABCD inscribed in a circle



By quadrilateral theorem

$\angle A + \angle C = 180$

$(y+20) + (2y-20) = 180$

$y + 20 + 2y - 20 = 180$

$3y = 180$

$y = \frac{180}{3}$

$y = 60^\circ$

$\angle B + \angle D = 180$

$(2x-5) + 95 = 180$

$2x - 5 + 95 = 180$

$2x + 90 = 180$

$2x = 180 - 90$

$2x = 90$

$x = \frac{90}{2}$

$x = 45^\circ$

$y = 60^\circ$, & $x = 45^\circ$

Q. No. 2 Part (vi)

Solve:

$$\frac{2}{x-1} + \frac{3}{x+1} = 1 \quad x \in R$$

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

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

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

$$\frac{5x-1}{x^2-1} = \frac{1}{1}$$

$$5x-1 = x^2-1$$

$$0 = x^2-5x+1$$

$$x^2-5x = 0$$

$$x(x-5) = 0$$

$x = 0$ | $x-5=0$, $x=5$

$x=0$, $x=5$

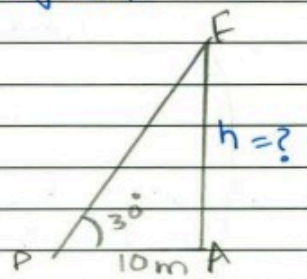
$\therefore S = \{0, 5\}$

Q. No. 2 Part (vii)

A flagstaff is observed from . . . . . ?

h = height of flagstaff

In Δ PAF



$$\tan\theta = \frac{\text{Perp}}{\text{base}}$$

$$\tan 30^\circ = \frac{h}{10}$$

$$0.5773 = \frac{h}{10}$$

$$(0.5773) \times (10) = h$$

$$\boxed{h = 5.773 \text{ m}}$$

height of flagstaff is 5.773m

$$\boxed{h = 5.773}$$

Q. No. 2 Part (viii)

Simplify

$$\frac{x^2-5x+6}{x^2-4} \times \frac{x+2}{x^2+x-6}$$

$$= \frac{x^2-3x-2x+6}{x^2-22} \times \frac{x+2}{x^2-2x+3x-6}$$

$$= \frac{x(x-3)-2(x-3)}{(x+2)(x-2)} \times \frac{x+2}{x(x-2)+3(x-2)}$$

$$= \frac{(x-2)(x-3)}{(x+2)(x-2)} \times \frac{(x+2)}{(x+3)(x-2)}$$

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

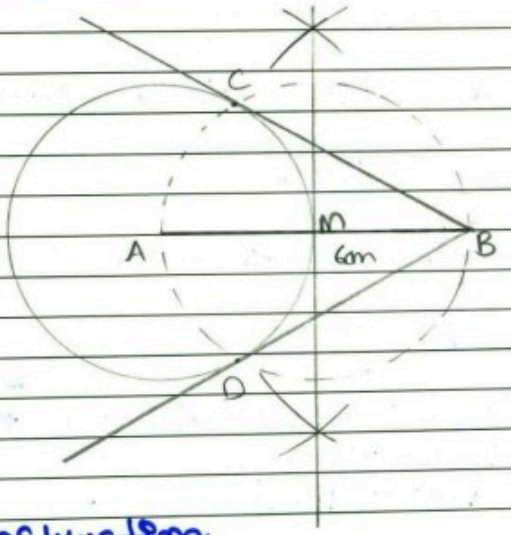
$$= \frac{x-3}{x^2-2x+3x-6}$$

$$= \frac{x-3}{x^2+x-6} \quad \text{Ans.}$$

$$= \boxed{\frac{x-3}{x^2+x-6}} \quad \text{Ans.}$$

Q. No. 2 Part (ix)

Draw two tangents to a circle of radius 3cm from a point lying at a distance of 6cm from the center the circle.



Construction:

Draw a line AB = 6cm
on point A draw a circle of radius 3cm
Draw prependicular bisector of AB and draw dotted circle of radius AM, and dotted circle and circle meet C and D **BC** and **BD** are targent

Q. No. 3 (Page 1)

A rectangular garden has a length 4m more than its width. A 2m wide path is constructed all round the garden . . . ?

Let width = w
let length = L

According to given condition

$L = w + 4$

$w(w+4)$ = Area of garden

Solve for w

$64 = w^2 + 12w + 32 - w^2 - 4w$

$64 = 8w + 32$

$w = 4m$

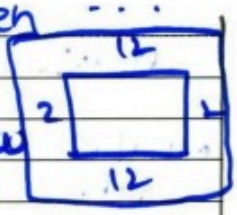
Length = $4 + 4 = 8m$

Length = 8m

width = 4 m
length = 8m

on next page

Q. No. 3 (Page 2) A rectangular garden . . . . . ?



Length of garden = l
width of garden = w
given condition is

$$L = w + 4 \quad -(1)$$

length of garden along path =

$$L = w + 8$$

width of garden along path =

$$w = w + 4$$

Area of path = $(L \times w) - (l - w)$

$$64 = (w+8)(w+4) - [(w+4)w]$$

$$64 = w^2 + 12w + 32 - w^2 - 4w$$

$$64 = 32 + 8w$$

$$64 - 32 = 8w$$

$$w = 4m$$

$$\text{length} = 4 + w$$
$$= 4 + w$$
$$= 4 + 4 = 8m$$

width = = 4m
length = 8 m

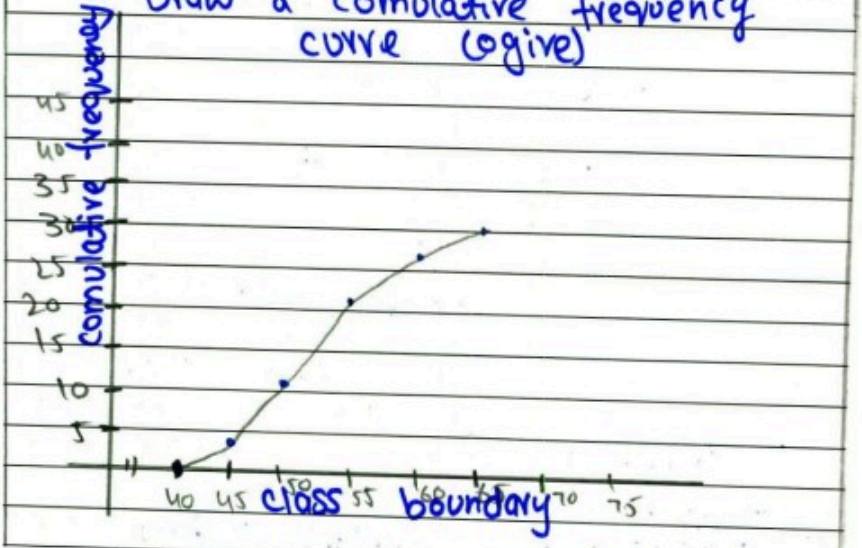
width = 4m, lenght = 8m

Q. No. 4 (Page 1) The following table shows distribution of weight in kg)

- Make their comulative freqvency table
- Draw a comulative freqvency curve (ogive)
- Comulative freqvency.

C.I	f	C-F	mid-point x
40-45	4	4	42.5
45-50	7	11	47.5
50-55	10	21	52.5
55-60	6	27	57.5
60-65	3	30	62.5

- Draw a comulative freqvency curve (ogive)



Q. No. 4 (Page 2)

Q. No. 5 (Page 1) Draw graphs of the following equations on the same axes and find their point of intersection.

$y = x^2 - 1$ — (1)

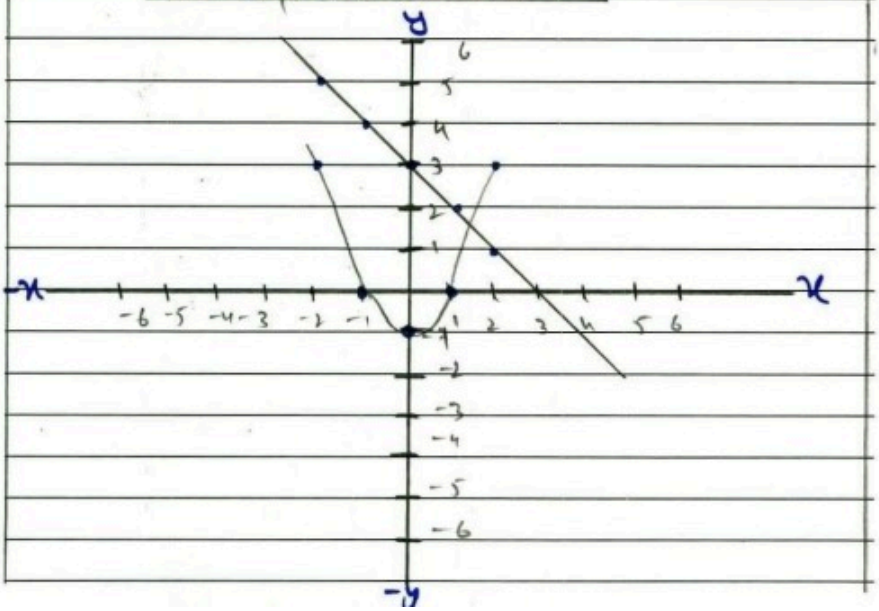
$y = -x + 3$ — (2)

Table of eq (1)

x	-2	-1	0	1	2
y	3	0	-1	0	3

Table of eq 2

x	-2	-1	0	1	2
y	5	4	3	2	1



Q. No. 5 (Page 2)

eq (1) ⇒

$y = x^2 - 1$

$-x + 3 = x^2 - 1$

$x^2 + x - y = 0$

$x = 1.56$ and $x = -2.56$

Then $y = 1.44$ and $y = 5.56$

$(1.56, 1.44)$ $(-2.56, 5.56)$

$(1.56, 1.44)(-2.56, 5.56)$ Ans.