	Graphics	(3)(Broth trice
		* Lecture	2,
Ma de A la a and		~	- 1 - 1 - 3 Y
Algorithms of drawing Circles:-			19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -
Wind to the	tan I me	+	1. 5.50
1) mathematically:	2 1212 42	may -	0>4714
dany out.	(d d 12/4 45	2 /2	2 - (Pa)
mainematically. 2 y²= r at any point: So difficult and 8 low. « decimal res	4 + 1/2 19 9012	=1	
So difficult and slow " decimal ves	ults.»		-190
		- N-10	-80
2) Irigonometric Functions:	4 despt charge	19	TO
MALE LABOR STANK	Herensept	1 ising	4
Set 0 from oil to 211	(2	cole) roso	and alone
Set 0 from 0.1 to 217 : point a: (roso, rsino) So difficult in graphics because of dec	inal south of two	la nomatra	Punctione
So difficult in graphics idecuise of the	imai resuits of iting	onomenic	functions.
3) Functions of the Circle:			
1. The fo	ur quarters are Si	milar.	180 1200
(-9	(2) (2y)		0 17
			2 10-
(0,0)	y (x,-y)	IP	H A
(-2		10	-3 6
2 We Canget 7 quarters from one 9	luarter.	8	1 3, 1 8
2-we carries pour son	y=-d	(-X.y) (x,y)	, J= d
	(-4-4)		y,x)
	7727		-
	(-)	XX	(y,-x)
The state of the s	+1-4+0/	(-21-y) (x1-y) tetano
350 98 37860	1 1 1 1 1 1 1 1 1	Z. Lidicia	

$$\begin{array}{c}
\chi^{2} + y^{2} + r^{2} \\
F(\chi, y) = \chi^{2} + y^{2} + r^{2}
\end{array}$$

If
$$F(x,y) < 0$$
 point inside Circle.
, If $F(x,y) = 0$ point on Circle.
, If $F(x,y) > 0$ point outside Circle.

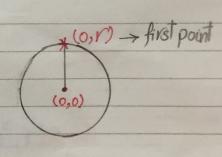
* Rules:

1)
$$P_0 = 1 - r$$

2) If $P_K < 0$ y does not change, $P_{K+1} = P_K + 2\alpha_{K+1} + 1$
, If $P_K > 0$ y decreases by 1, $P_{K+1} = P_K + 2\alpha_{K+1} - 2\beta_{K+1} + 1$

* Example: Draw a circle of radius lo and its center is the origin point.

	K	PK	241	YKAT	22KH	24/41
	0	-9	1	10	2	20
-	2	-6	2	10	6	20
The second named in column 2 is not the second named in column 2 i	3	6 -3	4 5	9	8 10	18
1	5	8	6	8	12	16
-	6	5	<u>C</u>	1924	14	



* At 2KH > JKH > Stop.

From the points (XXI) We get the first quarter of the Circle.

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To get the other 7 quarters, Fallow this rule: -
     * Example: at the point (3,10)
* Proof of the Rules: F(\mathcal{X}, \mathcal{Y}) = \mathcal{X}_{+}^{2} \mathcal{Y}^{2} \mathcal{Y}^{2}
F(\mathcal{X}_{K}, \mathcal{Y}_{K}) = \mathcal{X}_{K}^{2} + \mathcal{Y}_{K}^{2} - \mathcal{Y}^{2}
F(\mathcal{X}_{K}, \mathcal{Y}_{K} - \mathcal{Y}_{K}) = \mathcal{X}_{K}^{2} + \mathcal{Y}_{K} - \mathcal{Y}_{K}^{2} - \mathcal{Y}_{K}^{2} + \mathcal{Y}_{K}^{2} - \mathcal{Y}_{K}^{2} + \mathcal{Y}_{K}^{2} - \mathcal{Y}_{K}^{2} + \mathcal{Y}_{K}^{2} - \mathcal{Y}_{K}^{2} + \mathcal{Y}_{K}^{2} - \mathcal{
                                                                                                                                                                                                                                                             F(2K+2, JK+1-1/2) = 2K+2+(JK+1-1/2)-12
                  , at Pki:
                            By Subtracting the 2 equations:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2^{2}_{K1} = (2_{K+1})^{2}
                                                       PK+1 = PK+22K+3+(YK+1-YK)-(YK+1-YK)
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 $= P_{K} + 2(2K+1) + 1 + (y_{K+1}^{2} - y_{K}^{2}) - (y_{K+1} - y_{K})$

 $2^{2} \times 2 = (2 \times + 2)^{2}$

If Poco y chesn't change .. 9K+1 = 9K + 2 XK+1 +1 If Pk>0 y decleases by 1 : JK+1 = JK-1 : PK+1 = Pk+2241-24x+2+1 = Px + 22x+1 - 2(yx-1)+1 = Px + 22x+1 - 20x+1+1

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