Formula sheet Trigonometric Funtion, Sun

- · Principal solo 8- 0 = 0 = 211
- · General soln :-
 - 1) Sino = Sinx = 2011 + (-1) d . n EZ.
 - 2) COSO = COSX = 2NT + X, nEZ
 - 3) tano=tand= n11 +d, n EZ
- · Remark's :-
 - 1) sin0=0 → 0=n1, n∈z.
 - 2) cos0=0 → 0=(2n+1) 1 , n∈z
 - 3) tano= 0 0= n11, n EZ.
 - 4) Sin2 0 = Sin2 x
 - 5) cos20 = cos2d > 0=nn + 9
 - 6) tan20 = tan2d
- · Relation between polar and cortesian co-ordinates:

 $x = r\cos \theta$ and $y = r\sin \theta$. $r = \sqrt{x^2 + y^2}$ and $tan\theta = \sin \theta = y/r = y$ $\cos \theta = x/r = x$

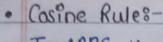
si Norter's Anology: To

0= tan - 1 x

· Sine Rule:

In AABC, a = b = C sinA sinB sinC

a:b:c = SinA: SinB: SinC.



In AABC, 1> cos A =
$$\frac{b^2+c^2-a^2}{2bc}$$
 $a^2=b^2+c^2-2bc\cos A$

2)
$$\cos B = \frac{(^2 + a^2 - b^2)}{b^2} = \frac{b^2}{a^2 + c^2} - 2ac\cos B$$

3)
$$\cos C = a^2 + b^2 - c^2 | c^2 = a^2 + b^2 - 2ab \cos C$$

• Application: - IJHalf angle formula:-

i)
$$\sin A = \sqrt{(s-b)(s-c)}$$
, $\sin B = \sqrt{(s-a)(s-c)}$, $\sin C = \sqrt{(s-a)(s-b)}$

bc ac ab

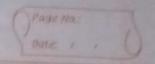
ii)
$$\cos A = \int \frac{s(s-a)}{bc}$$
, $\cos B = \int \frac{s(s-b)}{ac}$, $\cos C = \int \frac{s(s-c)}{ab}$

iii)
$$tan A = \frac{(s-b)(s-c)}{s(s-a)}, tan B = \frac{(s-a)(s-c)}{s(s-b)}, tan C = \frac{(s-a)(s-b)}{s(s-c)}$$

1)
$$tan(B-c) = (b-c)$$
 $cot A$
(b+c)

2)
$$tan(C-A) = (C \bullet a) = cot B$$

3)
$$tan\left(\frac{A-B}{2}\right) = \frac{(a-b)}{(a+b)} \cot \frac{C}{2}$$



Area	of MABC :- 1 absinc	1 be Sin A	1
	of NABC: - 1 absinc	2 0 310 H,	Tac siu R

· Inverse	of	funtion	o -
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	Function	Domain (x)	Range (y)	
	y=sin-1x	[-1,1]	$\begin{bmatrix} -\prod & \prod \\ 2 & 2 \end{bmatrix}$	
	y= tan-1x	R	$\left(-\frac{\prod}{2},\frac{\prod}{2}\right)$	
	Dec 131111-	collin vol	2 2)	
	4= cos-1x	[-1,1]	(O, 17)	
	y=cot'x	R	(0, П) (0,П)	
	y=sec-1x	R-(-1,1)	[0,1] - { 17 }	
-	1	w He was	(2)	
-	y=cosec-1x	R-(-1,1)	[-17, 17] - {0}	
	1	le lo vol	[3 2] , ,	

· Properties 8-

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e) 1)
$$2\tan^{-1}x = \sin^{-1}\left(\frac{2x^2}{1+x^2}\right)$$
, for $|x| \le 1$

2)
$$2\tan^{-1}x = \cos^{-1}\left(\frac{1-x^2}{1+x^2}\right)$$
, for $x \ge 0$

3)
$$2\tan^{-1}x = \tan^{-1}\left(\frac{2x^2}{1-x^2}\right)$$
, For, $-1 < x < 1$

f) 1)
$$\sin^{-1} \frac{1}{x} = \csc^{-1} x$$
 , for $x \in [-\infty, -1] \cup [1, \infty]$

2)
$$\cos^{-1} L = \sec^{-1} x$$
 For $x \in [-\infty, -1] \cup [1, \infty)$

· Always &-