8.3 ## Cos A =
$$\frac{5}{13}$$
 A = Q 2

Sin A = $\frac{12}{13}$

a) sin 2A = $2 \sin A \cos A$

= $2 \left(\frac{12}{13}\right) \left(\frac{5}{13}\right)$

= $\frac{(22)}{169}$

5) Cos 2A = $\cos^2 A - \sin^2 A$

= $\frac{25}{169} - \frac{\cos A}{169}$

= $\frac{118}{169}$

c) ban 2A = $-\frac{120}{119}$

A ∈ QI $\frac{4}{2}$ ∈ QI $0^\circ < \frac{4}{2} < \frac{20}{2}$

d) sin $\frac{4}{2}$ = $\frac{1}{2} \left(1 - \frac{5}{13}\right)$

= $\frac{2\sqrt{27}}{\sqrt{267}}$

(x Ces4x = 8 ces x - 8 ces x +1 Cos 4x = Cos (2(2x1) $= 2 \cos^{2}(2x) - 1$ $= 2 (2 \cos^{2}(x - 1)^{2} - 1$ = 2 (4 cus 4 - 4 cus x + 1) - 1 = 8 Cos4x - 8 Cos2x +1 tx tand - 1-00020 1-0020 1-(1-2 sin 2) sin 20 2 sin 0 coso - 2 sin 20 2 sin o cos d = sin d Cos v

= tand

Ex sin 2 - Fan x - sin x
2 tan x - $\sin \frac{x}{2} = \int (1 - \cos x) \frac{\tan x}{\tan x}$ = tanx - Cox(Sinx)
2 tanx - tanx - sinx / 2 tanx 427 Cer2x _ sec2x _ 2 km2x Cos 2x = 1-2sin x

Cos 2x = cos 2x $=\frac{1}{\cos^2x}-2\frac{\sin^2x}{\cos^2x}$ = sec2 - 2 tan2xv A 20 sindx = 4 sinx cox (2cos, x-1) sui 4x = sin 2 (2x) = 2 sin2x Cos 2x = if sinx Coox (2coox_1)

SS = Cos x - 6 sin x cos x - 6 sin x cos x + sin xCos4x = cos2(2x) = Cv32x - sin2x $= \cos^2 2x - \sin^2 2x$ $= (\cos^2 x - \sin^2 x)^2 - (2\sin x \cos x)$ - Cos x - 2 sin x cos x + sin x - 4 sin 2 cos2 - Cos 4x - 6 sin 2x Cos x + sin x $\frac{4c3}{tan} \frac{1}{x} = \frac{pecx + cox - 2}{pecx - cox}$ $\tan^2 x = \left(\frac{1 - \cos x}{\sin x}\right)^2$ - 1-2 CDX + CDX - 1-2cv>x + cv>x - 1-cv>x $\frac{1}{2} \frac{1}{2} \frac{2}{2} \frac{2}$ L - Cos2x
Cosx $\frac{-pecx-2+cvx}{-pecx-cvx}$

Ex sin x = 1 $X = \frac{71}{6} \left(\frac{50}{6} \left(0, 2\pi \right) \right)$ XEIR JX = 11 + 2n 17 X = 50 +217 (x sinx fanx = sinx (0,27) mix fanx - mix = 0 sin x (banx - 1) = 0 sin x = 0 tanx = 1 X = 0, 11, 11, 5/1 $X = \eta \eta , \frac{\eta}{q} + \eta \eta$

1x 2 sin t - Cost - 1 = 0 $\lceil o \rangle \bar{a} \rceil$ 2(1-cus2t) - cust - 1 = 0 2-2cos2t-cost-1=0 - 2 cos2f - cost + 1=0 cost = -1 Cost = 1 $t=17, \frac{17}{3}, \frac{57}{3}$ n = ,] - (2 n = , 5 15 + 2 n =) EX 4 sin x tanx - tanx -0 [0,20) tanx (4 sin x -1) = 0 US112x=1 512 X = 1 tanx = 0 $sin x = \pm \frac{1}{2}$ X = 0, 11, 11, 50, 70, 110

Ex Coc 42u - 4 =0 [0-27] $(csc^2u-2)(csc^2zu+2)=0$ $\csc 2u = \pm \sqrt{2}$ $\sin 2u = \pm \frac{1}{\sqrt{2}}$ 2 u = 1, 30, 50, 70 u = 17 , 30, 50, 20, 90, 1111 8 18 1 5 sin 0 tan 0 - 10tan 0 + 3 sin 0 - 6 = 0 5 tano (sino -2) + 3 (sino -2) - 0 (sind-2) (5taro +3)=0 sin 0 = 2 ff /and = -3