$\frac{d}{dx} S \dot{m} x = cos x$ $\frac{d}{dx} cos x = -S \dot{m} x$ $\frac{d}{dx} t con x = Sec^2 x$ $\frac{d}{dx} cot x = -csc^2 x$ $\frac{d}{dx} Sec x = Sec x t con x$

d cscx = escx cotx

 $\int \sin x \, dx = -\cos x + c$ $\int \sin x \, dx = \frac{-\cos kx}{k} + c$ $\int \cos x \, dx = \sin x + c$ $\int \cos kx \, dx = \frac{\sin kx}{k} + c$ $\int \sec^2 x \, dx = \tan x + c$ $\int \csc^2 x \, dx = -\cot x + c$ $\int \sec x \, \tan x \, dx = \int \sec x + c$

S cscx cot x dx = - csc x + c

5-3

and the listing

1) Sisecx tanx + Sinx) dx

2 Slesex cotx + sec2x) dx

4 Sinx cos x dr

$$= \frac{u^5}{5} + C = \frac{\cos x}{5} + C$$

5) cosx Sinx dx

$$=-\int u du = -\frac{u^6}{6} + C$$

(6) $\int \chi^2 Sin(\chi^3 + 1) dx$ M= 203+1 du = 3x2 dx = $\frac{1}{3}$ \Sin($2(^3+1)$) 32^2d2 = 1 Sin 4 du = 1 cosu + c = 1 cos(x3+1)+c (7) Sinx dx = - 5 cos x (- Sin x) dx $= -\int u^{-3} du = -\frac{u^{2}}{-2} + C = \frac{1}{2u^{2}} + C$ 2 cos2 x + C (8) Ssec3x tanx dx = Secx secx time dx

S) sec x toux elx

= Sec x sec x toux dx

U= Sec x

du= Sec x toux elx

soldu = \frac{u}{3} + C

= 1 Sec x + c

9 Sescax cot x dx = - Scscn(cscn) cot x dx

M= CSC X

du = - cscx cot xdx

 $=-\int u \, du = \frac{3}{3} + C$

= -1 esc3 x+c

10 STEDER CSCZX dr

=- (cotx) (-csc2x) dx

du = -ese2x dx

= - 2 Veot 3x + C

(1) Stanx Sec2 x dx = S(tanx) Sec2 x dx

U = tamac

 $= \int u^{\frac{1}{2}} du = \frac{3}{3} u^{\frac{3}{2}} + c$

 $= \frac{2}{3} \sqrt{\tan^3 x} + C$

(12) SVI+Sinx cosx dx = \ (1+Sinx) 2 cos x dx U=1+8inx du = cossida = S U2 du = 2 U2 + C $=\frac{2}{3}\sqrt{(1+\sin x)^3}+C$ $(3) \int \frac{dx}{(\sin^2 x) \sqrt{1 + \cot x}}$ = \(-csc^2 \times (1+cot \times)^2 d\times U=1+cot \times $= -\int u^{\frac{1}{2}} du = -2u^{\frac{1}{2}} + c$ =-2 (1+cotx) + c = -2 \(\tau + \cot \(\alpha \) + C $\frac{14}{(\cos^2 x) \sqrt{1+\tan x}} = \left(\frac{1}{\sec^2 x} \left(1 + \tan x \right)^2 \right)^2 dx$ U= 1+ tan x = (112 du du= Sec2x dx = 2 U2 + C = 2 V 1+ tanx + C