of the stations
any point.

Name: Udeala Favour chinecherem
matric no: 19/mtts01/409
Dept: MBBS

1. $\int \frac{2x}{\sqrt{4x^2-1}} \, dx$

Let $y = \sqrt{4x^2-1} = (4x^2-1)^{1/2}$

$\frac{dy}{dx} = \frac{1}{2}(4x^2-1)^{1/2} \cdot 8x$

$\frac{dy}{dx} = 4x(4x^2-1)^{-1/2}$

$dx = \frac{dy}{4x(4x^2-1)^{-1/2}} = \frac{(4x^2-1)^{1/2} \, dy}{4x}$

we have

$2\int \frac{x}{u} \, dx = 2\int \frac{x}{(4x^2-1)^{1/2}} \cdot \frac{(4x^2-1)^{1/2} \, du}{4x}$

$= \frac{1}{2}\int du$

$= \frac{1}{2} u + c = \frac{1}{2}\sqrt{4x^2-1} + C$

du =
we l
$\int u^6$
= (

$$= \frac{1}{2} uu = \frac{1}{2}\sqrt{4x^2-1} + C$$

2. $$\int \frac{\sin^{-1} x}{\sqrt{1-x^2}}\, dx.$$

$$= \int \sin^{-1} x \,(1-x^2)^{-1/2}\, dx.$$

Let $u = \sin^{-1} x$

$du = (1-x^2)^{1/2}\, dx$

$$\int u\, du = \frac{u^2}{2} + C$$

$$= \frac{(\sin^{-1} x)^2}{2} + C$$

3. $$\int (\tan x)^6 \sec^2 x\, dx$$

let $u = \tan x$

rem

$du = \sec^2 x \, dx$

we have

$$\int u^6 \, du = \frac{u^7}{7} + C$$

$$= \frac{(\tan x)^7}{7} + C$$