

Indefinite Integrals Ex 19.18 Q5

$$I = -\frac{1}{2} \log \left| 2 \cos x + \sqrt{4 \cos^2 x - 1} \right| + c$$

Indefinite Integrals Ex 19.18 Q6

Let
$$I = \int \frac{x}{\sqrt{4 - x^4}} dx$$

Let $x^2 = t$
 $\Rightarrow 2x dx = dt$
 $\Rightarrow x dx = \frac{dt}{2}$

$$I = \frac{1}{2} \int \frac{dt}{\sqrt{(2)^2 - t^2}}$$

$$= \frac{1}{2} \sin^{-1} \left(\frac{t}{2}\right) + c \qquad \left[\text{Since } \int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1} \left(\frac{x}{a}\right) + c\right]$$

$$I = \frac{1}{2}\sin^{-1}\left(\frac{x^2}{2}\right) + c$$

Indefinite Integrals Ex 19.18 Q7

Let
$$I = \int \frac{1}{x\sqrt{4-9(\log x)^2}} dx$$

Let $3\log x = t$

$$\Rightarrow \frac{3}{x} dx = dt$$

$$\Rightarrow \frac{1}{x} dx = \frac{dt}{3}$$

$$I = \frac{1}{3} \int \frac{dt}{\sqrt{(2)^2 - t^2}}$$

$$= \frac{1}{3} \sin^{-1} \left(\frac{t}{2}\right) + c \qquad \left[\text{Since } \int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1} \left(\frac{x}{a}\right) + c\right]$$

$$I = \frac{1}{3} \sin^{-1} \left(\frac{3\log x}{2}\right) + c$$

Indefinite Integrals Ex 19.18 Q8

$$I = \frac{1}{4} \log \left| \sin^2 4x + \sqrt{9 + \sin^4 4x} \right| + c$$

Indefinite Integrals Ex 19.18 Q9

$$I = \frac{1}{2} \log \left| \sin 2x + \sqrt{\sin^2 2x + 8} \right| + c$$

****** END *******