354.orri

10 ORDEZKAPEN METODOA.

a) $\int \sin x \cdot \cos x \cdot dx$

$t = \sin x \quad dt = \cos x\, dx.$

$\int t \cdot dt = \frac{t^2}{2} + K = \boxed{\frac{\sin^2 x}{2} + K.}$

b) $\int \frac{\sin x\, dx}{\cos^5 x} \qquad \cos x = t \qquad -\sin x\, dx = dt$

$\int \frac{-dt}{t^5} = -\int t^{-5} dx = -\frac{t^{-4}}{-4} = \frac{1}{4t^4} + K =$

$= \boxed{\frac{1}{4 \cdot \cos^4 x} + K}$

c) $\int \frac{2x\, dx}{\sqrt{9 - x^2}} =$

$t = 9 - x^2 \longrightarrow dt = -2x\, dx$

$\int \frac{-dt}{\sqrt{t}} = -\int t^{-1/2} dt = -\frac{t^{-1/2+1}}{-1/2+1} + K = -2\sqrt{t} + K$

$= \boxed{-2\sqrt{9 - x^2} + K}$

d) $\int \frac{x\, dx}{\sqrt{x^2 + 5}} \qquad t = x^2 + 5 \longrightarrow dt = 2x\, dx$

$\frac{dt}{2} = x\, dx$

$\int \frac{1}{2} \frac{dt}{\sqrt{t}} = \frac{1}{2} \int t^{-1/2} dt = \frac{1}{2} \frac{t^{-1/2+1}}{-1/2+1} + K = \sqrt{t} + K$

$= \boxed{\sqrt{x^2 + 5} + K}$