

354. (5) ORDE 2 KÄÄPEN METODDA

a) $\int \frac{dx}{3x-4} = \int \frac{dt/3}{t}$ || $t = 3x - 4$
 $= \frac{1}{3} \int \frac{dt}{t} = \frac{1}{3} \ln|t| + k$ $dt = 3dx$
 $= \frac{1}{3} \ln|3x-4| + k$ $\frac{dt}{3} = dx$

Berehakaikos

$$\int \frac{dx}{3x-4} = \frac{1}{3} \int \frac{3dx}{3x-4} = \frac{1}{3} \ln|3x-4| + k$$

b) $\int \frac{dx}{(3x-4)^2} = \int \frac{dt/3}{t^2} =$ || $t = 3x - 4$
 $= \frac{1}{3} \int \frac{dt}{t^2} = \frac{1}{3} \int t^{-2} dt = \frac{1}{3} \frac{t^{-2+1}}{-2+1} + k$ $dt = 3dx$
 $= \frac{1}{3} \frac{t^{-1}}{-1} + k = -\frac{1}{3t} + k = -\frac{1}{3(3x-4)} + k = \underline{\underline{\frac{-1}{9x-12} + k}}$ $\frac{dt}{3} = dx$

c) $\int \sqrt{3x-4} dx = \int \sqrt{t} \frac{dt}{3}$ || $t = 3x - 4$
 $= \frac{1}{3} \int t^{1/2} dt = \frac{1}{3} \frac{t^{1/2+1}}{1/2+1} + k$ $dt = 3dx$
 $= \frac{1}{3} \frac{t^{3/2}}{3/2} + k = \frac{2}{9} \sqrt{t^3} + k = \underline{\underline{\frac{2}{9} \sqrt{(3x-4)^3} + k}}$ $dx = dt/3$

d) $\int \sqrt[5]{\frac{1}{(3x-4)^3}} dx = \int \sqrt[5]{\frac{1}{t^3}} \frac{dt}{3} = \frac{1}{3} \int t^{-8/5} dt$
 $= \frac{1}{3} \frac{t^{-3/5+1}}{-3/5+1} + k = \frac{1}{3} \frac{t^{2/5}}{2/5} + k = \frac{5}{6} \sqrt[5]{t^2} + k$
 $= \underline{\underline{\frac{5}{6} \sqrt[5]{(3x-4)^2} + k}}$