

4.2A  
 $\Rightarrow$  I.  $\int_0^1 \frac{x^3-1}{x-2} dx = \int_0^1 (x^2+2x+4+\frac{5}{x-2}) dx =$

$\frac{x^3}{3} + x^2 + 4x + 5 \ln|x-2| \Big|_0^1 = \frac{1}{3} + 1 + 4 + 5 \ln 1 - 5 \ln 2$   
 $= \frac{1}{3} + 5 - 5 \ln 2$

ii  $\int \sin^2 x \tan x dx = \int 4 \sin^3 x \cos x dx =$   $t = \sin x$   $dt = \cos x dx$   
 $= \int 4t^3 dt = \frac{4t^4}{4} + C = \frac{4 \sin^4 x}{4} + C = \sin^4 x + C$  (3)