Calculus II, MAT102,
Sheet 2 (TRIGONOMETRIC TECHNIQUES OF & INTEGRATION OF RATIONAL FUNCTIONS USING PARTIAL FRACTIONS)

Name	
Student Number	
Year	
Mark	/10
Hand in by	

(Exercises)

Please attach your working, with this sheet at the front.

1. Evaluate the following integrals

   (i) $\int cos^3x\ \sin^4 x\, dx$

   (ii) $\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \cos^3 3x \sin^3 3x\, dx$

   (iii) $\int \tan x\ \sec^3 x\, dx$

   (iv) $\int cos^2x\ \sin^2 x\, dx$

   (v) $\int \frac{x}{\sqrt{x^2-4}}\, dx$

   (vi) $\int \frac{x^2}{\sqrt{9+x^2}}\, dx$

   (vi) $\int x^2\sqrt{x^2+9}\, dx$

   (vii) $\int \frac{x+1}{\sqrt{4+x^2}}\, dx$

2. Evaluate the following integrals using a partial fractions

   (i) $\int \frac{5x-2}{x^4-1}\, dx$

   (ii) $\int \frac{3x}{x^2-3x-4}\, dx$

   (iii) $\int \frac{x+2}{x^3+x}\, dx$

(v) $\displaystyle\int \frac{x^3+x}{x^2-1}\,dx$

(vi) $\displaystyle\int \frac{x^3+x+2}{x^2+2x-8}\,dx$

(vii) $\displaystyle\int \frac{x+4}{x^3+3x^2+2x}\,dx$.