

Quiz 5 - No work = No marks (50 min)

Exercise 1: (4 points)

Use an appropriate substitution and then trigonometric substitution to evaluate the following integral: **(Choose only 2)**

$$I = \int x\sqrt{1-x^4} dx$$

$$I = \int \sqrt{x} \sqrt{1-x} dx$$

$$I = \int \frac{x}{\sqrt{x^2+x+1}} dx$$

Exercise 2: (6 points)

Evaluate the following integrals: **(Choose only 2)**

a) $I = \int_0^{\frac{\pi}{2}} \sin^2 x \cos^2 x dx$

b) $I = \int \tan^3 x \sec x dx$

c) $I = \int e^x \sec^3(e^x) dx$

d) $I = \int \cos^2(2x) \sin x dx$

Exercise 3: (5 points)

Write out the form of the partial fraction decomposition of:

$$F(x) = \frac{2x^2+7}{x^3(2x-1)(x^2+25)^2} \text{ (Do not evaluate the constants!)}$$

Student's work (use the front and the back of the page only)