Quiz: 3 Math 102 Semester: 172 Duration: 40 minutes

Name: ID:

Q1. Write out the form of the partial fraction decomposition of $\frac{x^5+1}{x(x^2-x)(x^4+2x^2+1)}$

Q2. Evaluate the following the integrals

$$a) \int \frac{x}{x^2+2x+5}dx \qquad b) \int \frac{x^3+2x^2+6x-1}{(x^2+2x+5)^2}dx$$

Q3. Make an appropriate substitution to express the integral as a rational function $\int \frac{dx}{\sqrt{x}-\sqrt[3]{x}}$

Q4. Evaluate $\int_0^5 \frac{x}{x-2}\,dx$ if possible

Q5. Use the substitution $t = \tan(x/2)$ to evaluate $\int \frac{dx}{1-\cos x}$