

Math 2320 - Practice Test 2

Study Quizzes and Integration worksheet as well as ...

1 Partial Fractions

1. For the following set up the partial fraction decomposition (Do not solve).

$$\frac{1}{x^2(x^2+1)^2(x^2-1)^3} \quad \text{and} \quad \frac{1}{(x^4-1)^2}$$

2. $\int \frac{1}{x^3+x} dx$

3. $\int \frac{2x^2-x+1}{x^3+x^2} dx$

4. $\int \frac{4x+7}{x^3-x} dx$

5. $\int \frac{x^4-x+7}{x^5-x} dx$

6. $\int \frac{x^4-1}{x^3-6x^2-7x} dx$

2 Improper Integrals

1. $\int_0^1 \frac{1}{x} dx$

2. $\int_0^1 \frac{1}{x^2} dx$

3. $\int_1^\infty \frac{1}{x} dx$

4. $\int_1^\infty \frac{1}{x^2} dx$

5. $\int_1^\infty \frac{\ln(x)}{x} dx$

$$6. \int_2^{\infty} \frac{1}{x \ln(x)} dx$$

$$7. \int_3^{\infty} \frac{1}{x(\ln(x))^2} dx$$

$$8. \int_1^{\infty} \frac{1}{x(\ln(x))^2} dx$$

$$9. \int_1^{\infty} \frac{x \cos(x) - \sin(x)}{x^2} dx \text{ Hint: What is the derivative } \frac{\sin(x)}{x}?$$

$$10. \int_{-\infty}^{\infty} \sin(x) dx$$

$$11. \int_0^{\pi/2} \tan(x) dx$$