King Saud University

College of Sciences

Department of Mathematics

106 Math Exercises

(11)

Partial Fractions

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Evaluate the following integrals :

1-

$$\int \frac{x+16}{x^2+2x-8}\ dx$$

2-

$$\int \frac{5x^2 - 10x - 8}{x^3 - 4x}\ dx$$

3-

$$\int \frac{11x+2}{2x^2-5x-3}\ dx$$

4-

$$\int \frac{4x^2 - 5x - 15}{x^3 - 4x^2 - 5x} \; dx$$

5-

$$\int \frac{2x^2 - 12x + 4}{x^3 - 4x^2} \, dx$$

6-

$$\int \frac{2x^2 - 25x - 33}{(x+1)^2(x-5)}\ dx$$

7-

$$\int \frac{2x^3 + 2x^2 + 9x + 18}{x^4 + 9x^2}\ dx$$

7-

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

8-

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

9-

$$\int \frac{1}{x^4 - 1}\ dx$$

10-

$$\int \frac{5x^2 + 11x + 17}{x^3 + 5x^2 + 4x + 20} dx$$

11-

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

12-

$$\int \frac{x^4 + 2x^2 + 3}{x^3 - 4x} \, dx$$

13-

$$\int \frac{x^3 + 6x^2 + 3x + 16}{x^3 + 4x} \, dx$$

14-

$$\int \frac{e^{2x}}{e^{2x} - 5e^{x} + 6}\ dx$$

15-

$$\int \frac{sin2x}{sin^2x - 2sinx - 8}\ dx$$

14-