10/11

Tecnológico de Monterrey Preparatoria

Activity 5.6: More on Partial Fractions

Name Hannia Larissa Gómez W. ID A01570193 Date 04/04/2018

Solve the following integrals

1. $\int \frac{(t^2+t-3)\,dt}{t^3+t^2-4t-4}$

2. $\int \frac{2x^3-4x^2-15x+5}{x^2-2x-8}\,dx$

$x^2 + \frac{3}{2}\ln|x-4| - \frac{1}{2}\ln|x+2| + C$

3. $\int \frac{y^3-3y^2+1}{y^2-1}\,dy$

$\frac{y^2}{2} - 3y + \frac{3}{2}\ln|y+1| - \frac{1}{2}\ln|y-1| + C$

4. $\int \frac{(3x+1)\,dx}{2x^2-3x-9}$

$\frac{10}{9}\ln|x-3| + \frac{7}{18}\ln|2x+3| + C$

5. $\int \frac{t-22}{t^2-4t-5}\,dt$

$\frac{23}{6}\ln|t+1| - \frac{17}{6}\ln|t-5| + C$

6. $\int \frac{x-1}{(x^2-2x-8)^2}\,dx$

$\frac{1}{2}\ln|x-4| + \frac{1}{2}\ln|x+2| + C$

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

$\frac{7}{5}\ln|x+2| + \frac{8}{5}\ln|x-3| + C$

8. $\int \frac{5x+3}{x^3-2x^2-3x}\,dx$

$-\ln|x| + \frac{3}{2}\ln|x-3| - \frac{1}{2}\ln|x+1| + C$

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

$\frac{x^2}{2} + \ln|x-1| + \ln|x+1| + C$

10. $\int \frac{(3x^2-8x+13)\,dx}{(x+3)(x-1)^2}$

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

$-\frac{1}{5}\ln|x+1| + \frac{7}{10}\ln|2x-3| + C$

12. Find the area bounded by the graph of $y = \frac{1}{(x+1)(3-x)}$ and the x-axis on the interval $[0, 2]$

$A = 0.5493\,u^2$

By: *Teachers that Designed the Course*