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good!!

Name Angel Guevara

I.D. AO1570288 April, 2018

Choose T (true) or F (false) for each statement.

1. The partial fraction decomposition of the integral  $\int \frac{4x^2+5x-45}{x^3-2x^2-15x} dx$  is  $\frac{A}{x} + \frac{B}{(x+3)} + \frac{C}{(x-5)}$  F
2. The integral of  $\int \frac{5x^2+20x+6}{x^3+2x^2+x} dx$  is  $6 \ln|x| - \ln|x+1| - 9 \ln|x+1| + C$  F
3. The integral of  $\int (18-12x)(x^2-3x)^2 dx$  is  $-2(x^2-3x)^4 + C$  F
4. The integral of  $\int 5x\sqrt{x-3} dx$  is  $(x-3)^{\frac{5}{2}} + (x-3)^{\frac{3}{2}} + C$  F

5. Solve the following integral, THE STEPS OF YOUR PROCEDURE.

$\int \frac{x^3-3x^2+1}{x^2-1} dx = 1.5 \ln|x+1|$   
 $\frac{x^2-3x}{2} - .5 \ln|x-1| + C$   
 $\frac{A}{x+1} + \frac{B}{x-1}$

$x^3-2x^2-15x$   
 $x(x^2-2x^2-15)$   
 $x(x-5)(x+3)$

$x^3+2x^2+x$   
 $(x^2+2x+1)$   
 $(x+1)^2$

$u = x-3$   
 $du = 1 dx$   
 $x = u+3$   
 $dx = du$

$5(u+3)(u)^{\frac{1}{2}} du$   
 $5u^{\frac{3}{2}} + 15u^{\frac{1}{2}}$   
 $\frac{5u^{\frac{5}{2}}}{\frac{5}{2}} + 20u^{\frac{3}{2}} + C$

$A(x-1) + B(x+1) = x^3-3x^2+1$   
 $A(-1-1) = -3$   
 $A = \frac{3}{2} = 1.5$   
 $B(1+1) = -1$   
 $B = -\frac{1}{2}$

$\frac{1.5}{x+1} - \frac{.5}{x-1}$

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

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

$$\begin{array}{r} x^2 - 1 \overline{) x^3 - 3x^2 + 0x + 1} \\ \underline{x^3 - x} \phantom{+ 1} \\ -3x^2 + x + 1 \\ \underline{-3x^2 + 3} \\ x - 2 \end{array}$$

$$\left[ \frac{x^2}{2} - 3x + 1.5 \ln|x+1| - 0.5 \ln|x-1| + C \right]$$

$$\frac{x-2}{(x+1)(x-1)}$$

$$\frac{A}{x+1} + \frac{B}{x-1} = \frac{3/2}{x+1} + \frac{-1/2}{x-1} \quad 1.5 \ln|x+1| - 0.5 \ln|x-1|$$

$$A(x-1) + B(x+1) = x-2$$

$$B(2) = -1$$

$$B = -1/2$$

$$A(-2) = -3$$

$$A = 3/2$$