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3º Atividade Avaliativa

1) $\int x\,dx$

$$\int x\,dx = \frac{x^2}{2} + C$$

2) $\int x^{-3}\,dx$

$$\int x^{-3}\,dx = \frac{x^{N+1}}{N+1} \Rightarrow \frac{x^{-3+1}}{-3+1} \Rightarrow \frac{x^{-2}}{-3+1} \Rightarrow \frac{x^{-2}}{-2}$$

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

3) $\int x^{\frac{1}{5}}\,dx$

$$\int x^{\frac{1}{5}}\,dx = \frac{x^{N+1}}{N+1} \Rightarrow \frac{x^{\frac{1}{5}+1}}{\frac{1}{5}+1} \Rightarrow \frac{x^{\frac{6}{5}}}{\frac{1}{5}+1} \Rightarrow \frac{x^{\frac{6}{5}}}{\frac{6}{5}}$$

$$\frac{5x^{\frac{6}{5}}}{6} \Rightarrow \frac{5\sqrt[5]{x^6}}{6} + C$$

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S/L T/M Q/M Q/J S/V S/S D/D

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4)- $\int 10\sqrt{x}\,dx = A \times \int F(x)\,dx$

$10 \times \int \sqrt{x}\,dx$

$10 \times \int x^{\frac{1}{2}}\,dx \Big\} 10 \times \frac{x^{\frac{1}{2}+1}}{\frac{1}{2}+1} \Big\} 10 \times \frac{x^{\frac{3}{2}}}{\frac{1}{2}+1} \Big\} 10 \times \frac{x^{\frac{3}{2}}}{\frac{3}{2}}$

$10 \times \frac{2x^{\frac{3}{2}}}{3} \Big\} 10 \times \frac{2x^{\frac{3}{2}}}{3}$

$10 \times \frac{2\sqrt{x^3}}{3} \Big\} \frac{20x\sqrt{x}}{3} + C$

5)- $\int x(3x^2+2)^5\,dx = T = 3x^2+2$

$\int \frac{T^5}{6}\,dT \Big\} \frac{1}{6} \times \int T^5\,dT \Big\} = \frac{1}{6} \times \frac{T^{5+1}}{5+1}$

$\frac{1}{6} \times \frac{T^6}{5+1} \Big\} \frac{1}{6} \times \frac{T^6}{6} \Big\} \frac{1}{6} \times \frac{(3x^2+2)^6}{6}$

$= \frac{(3x^2+2)^6}{36} + C$

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6)- $\int (5x^4+2x)^3 (20x^3+2)dx$

$\int T^3 dT \;\Big\}\; \frac{T^{3+1}}{3+1} \;\Big\}\; \frac{T^4}{3+1} \;\Big\}\; \frac{T^4}{4}$

$\frac{(5x^4+2x)^4}{4} + C$ //

7)- $\int \cos(\text{sen}\,2x)\cos 2x\,dx$

$\int \frac{\cos(t)}{2}\,dt \quad \frac{1}{2}\int \cos(t)dt \;\Big\}\; \frac{1}{2}\,\text{sen}(t)$

$\frac{1}{2}\,\text{sen}(\text{sen}(2x)) \;\Big\}\; \frac{\text{sen}(\text{sen}(2x))}{2} + C$ //

8)- $\int_{-3}^{0} (x^2-4x+7)dx$

$\int x^2-4x+7\,dx \rightarrow \int x^2dx - \int 4x\,dx + \int 7\,dx$

$\frac{x^{2+1}}{2+1} \;\Big\}\; \frac{x^3}{2+1} \;\Big\}\; \frac{x^3}{3} \;\Big\}\; \frac{x^3}{3} - 2x^2 + 7x$

$\left(\frac{x^3}{3} - 2x^2 + 7x\right)\Big|_{-3}^{0} \;\Big\}\; \frac{0^3}{3} - 2x0^2 + 7x0 - \left(\frac{(-3)^3}{3} - 2x(-3)^2 + 7x(-3)\right)$

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$$\frac{0}{3} - 2\times 0^2 + 7\times 0 - \left(\frac{(-3)^3}{3} - 2\times(-3)^2 + 7\times(-3)\right)$$

$$\frac{0}{3} - 2\times 0 + 0 - \left(\frac{-27}{3} - 2\times 3^2 - 21\right)$$

$$0 - 0\,(-9 - 2\times 9 - 21)\} - (-9 - 18 - 21)\} - (-48)$$

$$= 48 \;//$$

9)- $\int_1^2 \frac{dx}{x^6}$

$$\int \frac{1}{x^6}\,dx \;\Big\}\; \frac{-1}{(6-1)x^{6-1}} \;\Big\}\; \frac{-1}{5x^{6-1}} \;\Big\}\; \frac{-1}{5x^5}\Big|_1^2$$

$$\frac{-1}{5\times 2^5} - \left(\frac{-1}{5\times 1^5}\right) \;\Big\}\; \frac{31}{160} \;//$$

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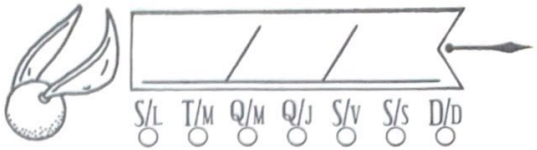

10) - $\int_{13}^{14} (x-13)^{10} \cdot dx$

$\int (x-13)^{10} dx \rightarrow \int T^{10} dT$

$\frac{T^{10+1}}{10+1} \} \frac{T^{11}}{10+1} \} \frac{T^{11}}{11} \} \frac{(x-13)^{11}}{11} \Big|_{13}^{14}$

$\frac{(14-13)^{11}}{11} - \frac{(13-13)^{11}}{11} \} \frac{1}{11}$

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