Answer on Question #85483 – Math – Calculus

Question

Evaluate the following integrals

1) $\int -\cos x\, dx$ (1)

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

Solution

1) Evaluate the integral (1):

$\int -\cos x\, dx = -\int \cos x\, dx = -\sin x + C.$

Check the result:

$(-\sin x + C)^{/} = (-\sin x)^{/} + C^{/} = -\cos x.$

2) Evaluate the integral (2) :

$\int \frac{(x+2)x+1}{x}\, dx = \int \frac{x^2+2x+1}{x}\, dx = \int (x + 2 + \frac{1}{x})\, dx = \frac{1}{2}x^2 + 2x + \ln|x| + C.$

Check the result:

$(\frac{1}{2}x^2 + 2x + \ln|x| + C)^{/} = (\frac{1}{2}x^2)^{/} + (2x)^{/} + (\ln|x|)^{/} + C^{/} = x + 2 + \frac{1}{x} = \frac{x^2+2x+1}{x} = \frac{(x+2)x+1}{x}.$

Answer: **1)** $\int -\cos x\, dx = -\sin x + C$, **2)** $\int \frac{(x+2)x+1}{x}\, dx = \frac{1}{2}x^2 + 2x + \ln|x| + C.$