Auto-generated calculus article

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1 First section

One shall regard the object in question with utmost interest:

$$(x+1)^{\frac{\sin x}{2}} \cdot \left(\arctan \sqrt{x^2+1}\right)^{x-2} \tag{1}$$

We will allow ourselves to divert the reader's attentions to this gem of mathematical wonder:

$$A \cdot \left(\arctan \sqrt{x^2+1}\right)^{x-2} + (x+1)^{\frac{\sin x}{2}} \cdot C \tag{2}$$

Where:

- $A = (x+1)^{\frac{\sin x}{2}} \cdot \left(\frac{\cos x \cdot 2}{4} \cdot \ln(x+1) + \frac{\sin x}{2} \cdot \frac{1}{x+1}\right)$
- $B = \frac{1}{1+\left(\sqrt{x^2+1}\right)^2} \cdot \frac{1}{2 \cdot \sqrt{x^2+1}} \cdot 2 \cdot x$
- $C = \left(\arctan \sqrt{x^2+1}\right)^{x-2} \cdot \left(\ln \arctan \sqrt{x^2+1} + (x-2) \cdot \frac{B}{\arctan \sqrt{x^2+1}}\right)$

We will take a closer look at this:

$$G + \left(F + (\arctan 1)^{-2} \cdot \ln \arctan 1 + D + E\right) \cdot \frac{x^3}{6} \tag{3}$$

Where:

- $A = (\arctan 1)^{-2} \cdot \ln \arctan 1 \cdot \ln \arctan 1 - (\arctan 1)^{-2} \cdot 2 \cdot \frac{0.5 \cdot \arctan 1}{(\arctan 1)^2}$
- $B = (\arctan 1)^{-2} \cdot \ln \arctan 1 \cdot \ln \arctan 1 - (\arctan 1)^{-2} \cdot 2 \cdot \frac{0.5 \cdot \arctan 1}{(\arctan 1)^2}$
- $C = \frac{1}{\arctan 1} \cdot 0.5 + \frac{0.5 \cdot \arctan 1}{(\arctan 1)^2} + \frac{0.5 \cdot \arctan 1}{(\arctan 1)^2}$
- $D = (B) \cdot \ln \arctan 1 - (\arctan 1)^{-2} \cdot \ln \arctan 1 \cdot 2 \cdot \frac{0.5 \cdot \arctan 1}{(\arctan 1)^2}$
- $E = (\arctan 1)^{-2} \cdot (C) - (\arctan 1)^{-2} \cdot \ln \arctan 1 \cdot 2 \cdot \frac{0.5 \cdot \arctan 1}{(\arctan 1)^2}$
- $F = (\arctan 1)^{-2} \cdot \ln \arctan 1 - 1.5 \cdot (\arctan 1)^{-2} + (\arctan 1)^{-2} \cdot \ln \arctan 1$
- $G = (\arctan 1)^{-2} + (\arctan 1)^{-2} \cdot \ln \arctan 1 \cdot x + \left((\arctan 1)^{-2} + A\right) \cdot \frac{x^2}{2}$