

## CORRECTION DU CB N°7

$$\text{i) } \text{DL}_5(e^x \sin x) = x + x^2 + \frac{1}{3}x^3 - \frac{1}{30}x^5 + o_0(x^5)$$

$$\text{ii) } \text{DL}_4\left(\frac{\ln(1+x)}{\text{ch}(x)}\right) = x - \frac{1}{2}x^2 - \frac{1}{6}x^3 + 0 \cdot x^4 + o_0(x^4)$$

$$\text{iii) } \text{DL}_5\left(\cos\left(\frac{x}{1-x}\right)\right) = 1 - \frac{1}{2}x^2 - x^3 - \frac{35}{24}x^4 - \frac{11}{6}x^5 + o_0(x^5)$$

$$\text{iv) } \text{DL}_5\left(\frac{1+x^2 - e^{(x^2)}}{x^4}\right) = -\frac{1}{2} - \frac{1}{6}x^2 - \frac{1}{24}x^4 + o_0(x^5)$$

$$\text{v) } \text{DL}_3\left(\sqrt{\frac{\sin x}{x}}\right) = 1 - \frac{1}{12}x^2 + 0 \cdot x^3 + o_0(x^3)$$

## CORRECTION DU CB N°7

$$\text{i) } \text{DL}_5(e^x \cos x) = 1 + x - \frac{1}{3}x^3 - \frac{1}{6}x^4 - \frac{1}{30}x^5 + o_0(x^5)$$

$$\text{ii) } \text{DL}_4\left(\frac{\ln(1-x)}{1+\text{sh}(x)}\right) = -x + \frac{1}{2}x^2 - \frac{5}{6}x^3 + \frac{3}{4}x^4 + o_0(x^4)$$

$$\text{iii) } \text{DL}_5\left(\sin\left(\frac{x}{1+x}\right)\right) = x - x^2 + \frac{5}{6}x^3 - \frac{1}{2}x^4 + \frac{1}{120}x^5 + o_0(x^5)$$

$$\text{iv) } \text{DL}_5\left(\frac{x^2 - \ln(1+x^2)}{x^4}\right) = \frac{1}{2} - \frac{1}{3}x^2 + \frac{1}{4}x^4 + 0 \cdot x^5 + o_0(x^5)$$

$$\text{v) } \text{DL}_3\left(\sqrt{\frac{\text{sh}(x)}{x}}\right) = 1 + \frac{1}{12}x^2 + 0 \cdot x^3 + o_0(x^3)$$