

## CORRECTION DU CB N°8

- i)  $DL_5(ch(x)\sin(x)) = x + \frac{1}{3}x^3 - \frac{1}{30}x^5 + o_0(x^5)$
- ii)  $DL_3\left(\frac{e^x}{1+\ln(1-x)}\right) = 1 + 2x + 3x^2 + \frac{9}{2}x^3 + o_0(x^3)$
- iii)  $DL_5\left(\cos\left(\frac{x}{1+x}\right)\right) = 1 - \frac{1}{2}x^2 + x^3 - \frac{35}{24}x^4 + \frac{11}{6}x^5 + o_0(x^5)$
- iv)  $DL_3\left(\frac{1 - \frac{x^2}{2} - \cos x}{x^4}\right) = -\frac{1}{24} + \frac{1}{720}x^2 + 0 \cdot x^3 + o_0(x^3)$
- v)  $DL_2(\sqrt{e^x}) = 1 + \frac{1}{2}x + \frac{1}{8}x^2 + o_0(x^2)$
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- i)  $DL_5(sh(x)\cos(x)) = x - \frac{1}{3}x^3 - \frac{1}{30}x^5 + o_0(x^5)$
- ii)  $DL_3\left(\frac{e^x}{1-\ln(1+x)}\right) = 1 + 2x + 2x^2 + \frac{3}{2}x^3 + o_0(x^3)$
- iii)  $DL_5\left(\sin\left(\frac{x}{1-x}\right)\right) = x + x^2 + \frac{5}{6}x^3 + \frac{1}{2}x^4 + \frac{1}{120}x^5 + o_0(x^5)$
- iv)  $DL_3\left(\frac{x - \frac{x^3}{6} - \sin x}{x^5}\right) = \frac{-1}{120} + \frac{1}{5040}x^2 + 0 \cdot x^3 + o_0(x^3)$
- v)  $DL_2(\sqrt{1+\ln(1+x)}) = 1 + \frac{1}{2}x - \frac{3}{8}x^2 + o_0(x^2)$