Math330

Linearization

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Mahmoud Ghannam

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(1) $\quad y = Ax^2 + \frac{B}{x} \quad\quad\quad \implies \quad\quad\quad xy = Ax^3 + B$

(2) $\quad y = A\sin x + B\cos x \implies \quad\quad \frac{y}{\cos x} = A\tan x + B$

(3) $\quad y = A\sin x + Be^x \quad\quad \implies \quad ye^{-x} = Ae^{-x}\sin x + B$

(4) $\quad y = \frac{1}{\sqrt{Be^{Ax^2}}} \quad\quad\quad \implies \quad\quad \ln(\frac{1}{y^2}) = Ax^2 + \ln(B)$

(5) $\quad y = \frac{A\cos(\pi x)+B}{x} \quad\quad \implies \quad\quad xy = A\cos(\pi x) + B$

(6) $\quad y = C + \frac{D}{x} \quad\quad\quad\quad \implies \quad\quad\quad y = D(\frac{1}{x}) + C$

(7) $\quad y = \frac{A}{x} + B\cos x \quad\quad \implies \quad\quad xy = Bx\cos x + A$

(8) $\quad y = Ax^3 + B\cos x \quad\quad \implies \quad\quad \frac{y}{\cos x} = A(\frac{x^3}{\cos x}) + B$

(9) $\quad y = \frac{x}{A+Bx} \quad\quad\quad\quad \implies \quad\quad\quad \frac{1}{y} = A(\frac{1}{x}) + B$

(10) $\quad y = Ce^{Dx} \quad\quad\quad\quad \implies \quad\quad \ln(y) = Dx + \ln(C)$

(11) $\quad y = ae^{bx^2} \quad\quad\quad\quad \implies \quad\quad \ln(y) = bx^2 + \ln(a)$

(12) $\quad y = \frac{Cx}{D+x} \quad\quad\quad\quad \implies \quad\quad\quad \frac{1}{y} = \frac{D}{C}(\frac{1}{x}) + \frac{1}{C}$

(13) $\quad y = \frac{A}{x} + B \quad\quad\quad\quad \implies \quad\quad\quad xy = Bx + A$

(14) $\quad y = \frac{D}{x+C} \quad\quad\quad\quad \implies \quad\quad\quad \frac{1}{y} = \frac{1}{D}\,x + \frac{C}{D}$

(15) $\quad y = Cx^D \quad\quad\quad\quad \implies \quad \ln(y) = D\ln(x) + \ln(C)$

(16) $\quad y = (Ax^2 + B)^3 \quad\quad \implies \quad\quad\quad \sqrt[3]{y} = Ax^2 + B$

(17) $\quad y = Cxe^{-Dx} \quad\quad\quad \implies \quad\quad \ln(\frac{y}{x}) = -Dx + \ln(C)$

(18) $\quad y = Ax^2 + Bx \quad\quad\quad \implies \quad\quad\quad \frac{y}{x} = Ax + B$