

تمارين 2.4

1. احسب مشتقات الدوال التالية :

- (1) $f(x) = \sinh^{-1}(3^x) \sqrt{x}$ (2) $f(x) = \cosh^{-1}(\sqrt{x}) \ln|x^2 - 1|$
 (3) $f(x) = (e^{4x} + \tanh^{-1} 3x)^5$ (4) $f(x) = \ln|\coth^{-1} 2x + \sinh 2x|$
 (5) $f(x) = \operatorname{sech}^{-1}\left(\frac{1}{x}\right) + e^{\cosh x}$ (6) $f(x) = \operatorname{csch}^{-1}(\cos x) + \ln|\sinh x|$

2. احسب التكاملات التالية :

- (1) $\int \frac{5x^2}{\sqrt{9 + 16x^6}} dx$ (2) $\int \frac{3x}{\sqrt{25x^4 + 16}} dx$
 (3) $\int \frac{x^3}{36 - 9x^8} dx$ (4) $\int \frac{3x}{x^2 \sqrt{9 - 16x^4}} dx$
 (5) $\int \frac{5x}{x^2 \sqrt{4 - 9x^4}} dx$ (6) $\int \frac{\sinh x}{4 - 25 \cosh^2 x} dx$
 (7) $\int \frac{x - 2}{\sqrt{25 + x^2}} dx$ (8) $\int \frac{x + 1}{16 - x^2} dx$
 (9) $\int \frac{\cosh^{-1} x}{\sqrt{x^2 - 1}} dx$ (10) $\int \frac{2}{\sqrt{9 - e^{6x}}} dx$
 (11) $\int \frac{5}{x \sqrt{25 + 4x^4}} dx$ (12) $\int \frac{1}{x \sqrt{25 - x^3}} dx$
 (13) $\int \frac{7}{\sqrt{x^2 + 6x}} dx$ (14) $\int \frac{5}{\sqrt{x^2 + 2x + 10}} dx$
 (15) $\int \frac{2}{(x + 3) \sqrt{x^2 + 6x + 25}} dx$ (16) $\int \frac{3}{(x + 1) \sqrt{3 - x^2 - 2x}} dx$