習題集 6 簡答

(對應 張旭微積分 微分篇重點六：萊布尼茲微分符號與隱函數微分法)

1. $(2^x \cdot 3\ln 2)^3$.

2. $\dfrac{-16x}{(1+4x^2)^2}$.

3. $\dfrac{-3}{x^2}$.

4. $-256x^3\sin(4x^2)+64x\cos(4x^2)+32x\cos(4x^2)$.

5. $-\cos x+8\sin 2x+36\sec^2 3x\tan^2 3x+54\sec^4 3x$.

6. $\dfrac{-24}{x_0{}^5}$.

7. $\dfrac{\frac{n}{m}(\frac{n}{m}+1)}{x_0{}^{\frac{n}{m}+2}}$.

8. $\pm\dfrac{2}{3}$

9. $\dfrac{-9}{2}$.

10. Find $\dfrac{\mathrm{d}f}{\mathrm{d}x}=\dfrac{1}{x^2}e^{\frac{-1}{x}}$, $\dfrac{\mathrm{d}^2f}{\mathrm{d}x^2}=e^{\frac{-1}{x}}((\frac{1}{x})^4-2(\frac{1}{x})^3)$, $\dfrac{\mathrm{d}B}{\mathrm{d}x}=e^{\frac{-1}{1-x^2}}\dfrac{-2x}{(1-x^2)^2}$, $\dfrac{\mathrm{d}^2B}{\mathrm{d}x^2}=e^{\frac{-1}{1-x^2}}\dfrac{-2+6x^4}{(1-x^2)^4}$.