

習題集 4

(對應 [張旭微積分](#) 微分應用篇重點四：微分求極值法)

1. When $x = 1$, $f(x)$ has minimum -4 .
2. Maximum: $\sqrt{10}$; minimum: $-\sqrt{10}$.
3. When $x = \pm \frac{1}{\sqrt{3}}$, $f(x)$ has (absolute) minimum $-\frac{2}{3\sqrt{3}}$; when $x = 0$, $f(x)$ has local maximum 0 .
4. When $x = \pm 1, 0$, $f(x)$ has (absolute) minimum 0 ; when $x = \pm \frac{1}{\sqrt{3}}$, $f(x)$ has local maximum $\frac{2}{3\sqrt{3}}$.
5. $\frac{\sqrt{35}}{6}$.
6. 72 .
7. minimum: $\frac{1}{\sqrt[e]{e}}$.
8. $\frac{R_1}{2}$.
9. $x = \frac{a^{\frac{1}{3}}s}{a^{\frac{1}{3}} + b^{\frac{1}{3}}}$.
10. $h = \sqrt{\frac{4\pi}{3}}r$.