

海洋大學河海工程研究所 Complex variable 基本能力測試 2006

1. Solve $z^4 + 1 = 0$
2. Use Demovie theorem to derive $\cos(3\theta) = 4\cos^3(\theta) - 3\cos(\theta)$
3. Solve $x^3 + px^2 + qx + r = 0$ using the result of (2).
4. $\lim_{z \rightarrow 0} \frac{\text{Im}(z)}{\text{Re}(z)} = ?$
5. $f(z) = z$ Find $f'(z)$ at $z = (0, 0)$
6. $f(z) = 1/z$ 如何 mapping 畫畫圖 $z = x + yi, w = u + vi = 1/z$
7. 要如何將 e, π 與 -1 串起來