

Compute  $z^3$  for  $z = 1 - \sqrt{3}i$ . [105 台科大材料 8]

$$[\text{解}] z = 1 - \sqrt{3}i = 2\left(\frac{1 - \sqrt{3}i}{2}\right) = 2\left(\cos\frac{5\pi}{3} + i\sin\frac{5\pi}{3}\right)$$

$$z^3 = 2^3\left[\cos\left(\frac{5\pi}{3} \times 3\right) + i\sin\left(\frac{5\pi}{3} \times 3\right)\right] = 8(\cos 5\pi + i\sin 5\pi) = 8(-1 + 0) = -8$$



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