

3.85  
18

$$\left(\frac{4}{\sqrt{2}i-1}\right)^{12} = \left(\frac{4 \operatorname{cis} 0}{2 \operatorname{cis} 150}\right)^{12} = (2 \operatorname{cis}(-150))^{12} = 2^{12} \operatorname{cis}(-1800) = 2^{12} \operatorname{cis} 0 \rightarrow r = 2^{12}, \theta = 0$$

3.85  
9

$$S_n = i + i^2 + \dots + i^n = \frac{i(i^n - 1)}{i - 1}$$
 (Note:  $i^4 = 1$ )

$$S_n = \frac{i(i^n - 1)}{i - 1} = \frac{1 - i^{n+1}}{1 - i}$$
 (Note:  $i^4 = 1$ )

$$S_n = \frac{i(i^n - 1)}{i - 1} = \frac{1 - i^{n+1}}{1 - i}$$
 (Note:  $i^4 = 1$ )

$$z^3 = -4\sqrt{2} + 4\sqrt{2}i = -4\sqrt{2}(1 - i) = 8 \operatorname{cis} 135 = 8 \operatorname{cis} \frac{3\pi}{4}$$

$$z_k = 2 \operatorname{cis} \left(\frac{\pi}{4} + \frac{2k\pi}{3}\right) \quad k = 0, 1, 2$$