

3.63  
k8

$$z_1 = r \operatorname{cis} \varphi, \quad z_2 = \sqrt[4]{8} \left( \cos\left(\frac{\pi}{2} - \frac{\pi}{8}\right) + i \sin\left(\frac{\pi}{2} - \frac{\pi}{8}\right) \right)$$

$$z_1^3 = z_2^2 \rightarrow r^3 \operatorname{cis} 3\varphi = \sqrt{8} \operatorname{cis} \frac{3\pi}{4}$$

$$\cancel{z_1^3 = z_2^2} \rightarrow \cancel{z_1^3 = z_2^2} \quad \varphi = \frac{\pi}{4} + \frac{2\pi}{3}k \quad k=0,1,2$$

$$r^3 = \sqrt{8} \rightarrow r = \sqrt[6]{8} = \sqrt{2}$$

3.63  
k9

$$\text{i} \quad 4 \geq |z-5i| \rightarrow 4 \geq |x+iy-5i| \rightarrow 16 \geq (x)^2 + (y-5)^2$$

$$-36 < \operatorname{Re}(z^2) \rightarrow -36 < x^2 - y^2$$

ii

(ist)  $\sqrt{x^2 - y^2}$  ist real  
ist  $\sqrt{x^2 - y^2}$  ist real



$$x^2 = 16 - (y-5)^2$$
$$f = \frac{y}{x} = \frac{y}{\sqrt{16 - (y-5)^2}} \rightarrow f' = \frac{\sqrt{16 - (y-5)^2} + \frac{2y(y-5)}{2\sqrt{16 - (y-5)^2}}}{( )^2} = 0$$

$$2(16 - y^2 + 10y - 25) + 2y^2 - 10y = 0$$

$$10y = 18 \rightarrow y = 1.8$$
$$x = 2.4 \rightarrow z = 2.4 + 1.8i$$

ist real