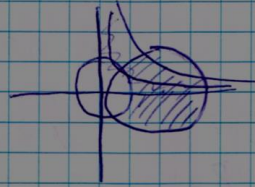


3.90
28

$$1 \leq |z| \rightarrow 1 \leq x^2 + y^2$$
$$4 > \operatorname{Im} z^2 \rightarrow 4 > 2xy \rightarrow \frac{2}{x} > y$$
$$0 > |z|^2 - 5 \operatorname{Re}(z) \rightarrow 0 > x^2 + y^2 - 10x \rightarrow (x-5)^2 + y^2 < 25$$

3.90
29

(1) $z^5 = 32 = 32 \operatorname{cis} 0$
 $z_k = 2 \operatorname{cis} \left(\frac{2\pi k}{5} \right) \quad k = 0, 1, 2, 3, 4$



(2) $z > \left| \frac{1}{z-2i} \right| = \frac{1}{|x+iy-2i|} = \frac{1}{\sqrt{x^2+(y-2)^2}}$
 $x^2 + (y-2)^2 > \frac{1}{4}$

