5.) Sketch the set of points determined by the condition

a) $\text{Re}(\overline{z} - i) = 2$

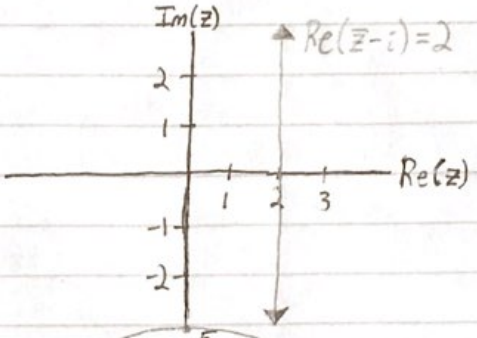
Let $z = x + iy$

$\Rightarrow \text{Re}(\overline{(x+iy)} - i) = 2$

$\Rightarrow \text{Re}(x - iy - i) = 2$

$\Rightarrow \text{Re}(x + i(-y-1)) = 2$

$\Rightarrow x = 2$



b.) $|\overline{z} + i| = 4$

Let $z = x + iy$

$\Rightarrow |\overline{(x+iy)} + i| = 4$

$\Rightarrow |x - iy + i| = 4$

$\Rightarrow |x + i(-y+1)| = 4$

$\Rightarrow |x + i(-y+1)|^2 = 16$

$\Rightarrow x^2 + (-y+1)^2 = 16$

$\Rightarrow x^2 + (y-1)^2 = 16$