

## Quiz II

**Exercise 1.** Sketch the region of  $z$  in  $\mathbb{C}$  satisfying  $\text{Im}(z^2) < 0$ . Is this region open? Is it connected? Is it a domain?

**Exercise 2.** Using the definition of limit (don't just plug in  $i$  for  $z$ ), show that

$$\lim_{z \rightarrow i} (z + 3)i = -1 + 3i.$$