Materials discussed on 22/11

1. Holomorphic map preserves angles at z_0 where $f'(z_0) \neq 0$.

2. Montel's theorem states that a family $\mathcal{F}$ of holomorphic functions in open connected set G is normal if and only if it is locally bonded. Use the theorem to show the following.

   (a) If $\{f_n\}$ is locally bounded, and

   $$\{z \in G : \lim_{n\to\infty} f_n = f\}$$

   has a limit point for some $f \in H(G)$, then $f_n \to f$.

   (b) Show that the following families are normal.

   i.
   $$F = \{f \in H(G) : \int_G |f|^2 dxdy \leq M\}$$

   ii.
   $$F = \{f \in H(G) : f(z_0) = w_0,\ Re(f) > 0,\ \forall z \in G\}$$

   where $z_0 \in G$, $w_0 \in \mathbb{C}, Re(w_0) > 0$.