6.   This exercise is on $\lambda\rightarrow$-Curry.
       (i)   Determine for each of the following terms (if typable) the most general
             type.

$$\lambda xy.x(yx),$$
$$\mathbf{SII},$$
$$\mathbf{II}.$$

       (ii) Show that the terms $\lambda xy.xyx$ and $\mathbf{KI}(\lambda x.xxx)$ are not typable.

7.   Investigate for each of the following λ-terms if it is typable in $\lambda\rightarrow$. If yes
       then give a type, if no then explain why not.

$$\lambda xy.x(\mathbf{I}x)y,$$
$$\lambda xy.x(x\mathbf{I})y.$$

8. α, β and γ are different typevariables.
       (i)   Find inhabitants of
             $(\alpha\rightarrow\beta\rightarrow\gamma)\rightarrow\beta\rightarrow\alpha\rightarrow\gamma$
             $(\alpha\rightarrow\alpha\rightarrow\beta)\rightarrow\alpha\rightarrow\beta$
             $(\alpha\rightarrow\alpha\rightarrow\beta)\rightarrow((\alpha\rightarrow\beta)\rightarrow\gamma)\rightarrow\gamma.$
       (ii) Prove that $((\alpha\rightarrow\beta)\rightarrow\alpha)\rightarrow\alpha$ is not inhabited. You may use that each
             typable term has a normal form.

9.   In untyped lambda calculus solve
       (i) $Fx = x\mathbf{I}(\mathbf{K}x).$
       (ii) $FxF = x\mathbf{I}(Fx).$
       (iii) $Fx = x\mathbf{I}(Fx).$