Nr.1)

a)
$$\dfrac{\dfrac{y:int}{succ(y):int} \text{ (T-Succ)} \qquad z:int}{\text{if } x \text{ then } succ(y) \text{ else } z:int} \text{ (T-If)} \quad \textcolor{red}{(+1)}$$

$$\Gamma := \{x:Bool, y:int, z:int\}$$

b)
$$\dfrac{\dfrac{x:int}{x:int \vdash iszero\ x:Bool} \text{ (T-iszero)}}{\vdash (\lambda x:Int\ \ is\ zero\ x):int \rightarrow Bool} \text{ (T-Abs)}$$

$$= Int \rightarrow Bool$$

$$\textcolor{red}{4/3}$$

$$\dfrac{(x : Bool \to Bool) \in \{x : Bool \to Bool \;\; y : Bool\}}{x : Bool \to Bool, y : Bool \vdash x : Bool \to Bool} \text{(T-Var)} \qquad \dfrac{(y : Bool) \in \{x : Bool \to Bool \;\; y : Bool\}}{x : Bool \to Bool, y : Bool \vdash y : Bool} \text{(T-Var)}$$

$$\dfrac{}{x : Bool \to Bool, y : Bool \vdash xy : Bool} \text{(T-App)}$$

$$\dfrac{x : Bool \to Bool, y : Bool \vdash xy : Bool}{x : Bool \to Bool \vdash \lambda y : Bool \; xy : Bool \to Bool} \text{(T-Abs)}$$

$$\dfrac{x : Bool \to Bool \vdash \lambda y : Bool \; xy : Bool \to Bool}{\vdash \lambda x : Bool \to Bool, \lambda y : Bool. xy : (Bool \to Bool) \to Bool \to Bool} \text{(T-Abs)}$$

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