1. We are defining a language that features the \&= statement, which returns the address of a variable on the right hand side and sets it as the value for the variable on the left hand side. Write the inference rule for 

\[(\sigma, h, x \&= y)\]

\(\sigma(y) = a \quad \sigma[x:a'] = \sigma' \quad h[a':a] = h' \quad r(a' \in \text{dom}(h)) \)

\((\sigma, h, x \&= y) \rightarrow (\sigma', h')\)

2. The language we’re defining also features the \%\_\ e operator, which casts the integer expression \(e\) to a boolean with value \text{true} if \(e\) is even and value \text{false} if \(e\) is odd. Write the inference rules for 

\((\sigma, h, \%e)\)

\((\sigma, h, e) \rightarrow \text{Integer}(n) \quad \text{mod}(n, 2) \rightarrow 0 \)

\(\sigma, h, \%e) \rightarrow \text{Bool}(\text{True})\)

\((\sigma, h, e) \rightarrow \text{Integer}(n) \quad \text{mod}(n, 2) \rightarrow 1 \)

\(\sigma, h, \%e) \rightarrow \text{Bool}(\text{False})\)