CS421 HW01
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Problem 1.

1. $\rho_1 = \{\}$
   (* empty environment *)
2. $\rho_2 = \{y \rightarrow 11, x \rightarrow 22\}$
3. $\rho_3 = \{x \rightarrow 165, y \rightarrow 11\}$
4. $\rho_4 = \{z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}$
5. $\rho_5 = \{w \rightarrow 33, z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}$
6. $\rho_6 = \{z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}$
7. $\rho_7 = \{f \rightarrow <x \rightarrow y * x, \{z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}>, z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}$
   (* So, f is $x \rightarrow 11 * x$ *)
8. $\rho_8 = \{x \rightarrow 121, f \rightarrow <x \rightarrow y * x, \{z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}>, z \rightarrow (165, 11), y \rightarrow 11\}$
   (* Because f is $x \rightarrow 11 * x$, so the new x is 11* y, which is 11 in the current environment, thus, the new x is 121 *)