

**Solution to CS421 Homework 0**

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1.  $\rho_1 = \{\}$
2.  $\rho_2 = \{y \rightarrow 11, x \rightarrow 22\}$
3.  $\rho_3 = \{x \rightarrow 165\} + \rho_2 = \{x \rightarrow 165, y \rightarrow 11\}$
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.  $\rho_6 = \{w \rightarrow 66\} + \rho_5 = \{w \rightarrow 66, z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}$
7.  $\rho_7 = \{f \rightarrow \langle x \rightarrow x * y, \rho_5 \rangle\} + \rho_5 = \{w \rightarrow 66, z \rightarrow (165, 11), y \rightarrow 11, x \rightarrow 22\}$
8.  $\rho_8 = \{x \rightarrow 232, f \rightarrow \langle x \rightarrow x * y, \rho_5 \rangle, w \rightarrow 33, z \rightarrow (165, 11), y \rightarrow 11\}$