CW2HWST-3)

We assume that the volumes of the gases do not change, since they are in containers. Heating at constant volume is described by

$$Q = \frac{\eta}{2} n R \Delta T \ . \label{eq:Q}$$

Then, comparing,

$$\frac{\eta_A}{2} nR\Delta T_A = \frac{\eta_B}{2} nR\Delta T_B$$
$$\frac{\eta_A}{\eta_B} = \frac{\Delta T_B}{\Delta T_A} = \frac{6}{10} = \frac{3}{5} .$$

We might infer that A is a monatomic gas and that B is a diatomic gas that rotates but does not vibrate.