

$$\begin{aligned}
\bar{a} &= \{y \in G/a\mathcal{R}y\} \\
&= \{y \in G/a^{-1}y \in H\} \\
&= \{y \in G/\exists h \in H, \ a^{-1}y = h\} \\
&= \{y \in G/\exists h \in H, \ y = ah\} \\
\boxed{\bar{a} = aH}
\end{aligned}$$