

Theorem 1.52 (*3rd Isomorphism Theorem*)

$$\begin{array}{ccc}
 R & \xrightarrow{\omega} & R/I \\
 \left\{ \begin{array}{c} \downarrow \\ J \\ \downarrow \\ J_1 \\ \downarrow \\ I \\ \downarrow \\ \{0\} \end{array} \right. & & \left. \begin{array}{c} \downarrow \\ J/I \\ \downarrow \\ J_1/I \\ \downarrow \\ I/I \end{array} \right\} \{R/I\} / \{J/I\}
 \end{array}$$