

$$\begin{array}{ccc}
 A & & \\
 \downarrow f & & \\
 B & &
 \end{array}
 \qquad
 \begin{array}{ccc}
 \textcolor{red}{F(A)} & \xrightarrow{i_A} & G(A) \\
 \downarrow F(f) & & \downarrow G(f) \\
 F(B) & \xrightarrow{i_B} & \textcolor{blue}{G(B)}
 \end{array}
 \qquad
 \begin{array}{ccc}
 x & \mapsto & x \\
 \downarrow & & \downarrow \\
 F(f)(x) & \mapsto & F(f)(x) \stackrel{?}{=} G(f)(x)
 \end{array}$$