Kevin Peters - kjpeter2

Homework 4

$$S = \{(f(f(y), h(x)), f(x, z)), (g(x), g(f(y)))\}$$

① Pull out pair $(f(f(y), h(x)), f(x, z))$

Decompose $\rightarrow (f(y), x), (h(x), z))$

$S = \{((f(y), x), (h(x), z)), (g(x), g(f(y)))\}$

② Pull out pair $(g(x), g(f(y)))$

Decompose $\rightarrow (x, f(y))$

$S = \{((f(y), x), (h(x), z)), (x, f(y))\}$

③ Pull out pair $((f(y), x), (h(x), z))$

Orient $\rightarrow ((x, f(y)), (z, h(x)))$

$S = \{((x, f(y)), (z, h(x))), (x, f(y))\}$

④ Pull out pair $(x, f(y))$

Eliminate: $\{x \mapsto f(y)\}$

$S = \{(z, h(f(y)))\}$ with $\{x \mapsto f(y)\}$

⑤ Pull out pair $(z, h(f(y)))$

Eliminate: $\{z \mapsto h(f(y))\}$

$S = \{\}$ with $\{x \mapsto f(y)\} \circ \{z \mapsto h(f(y))\}$

Proof with

$S = \{(f(f(y), h(f(y))), f(f(y), h(f(y)))), (g(f(y)), g(f(y)))\}$ □