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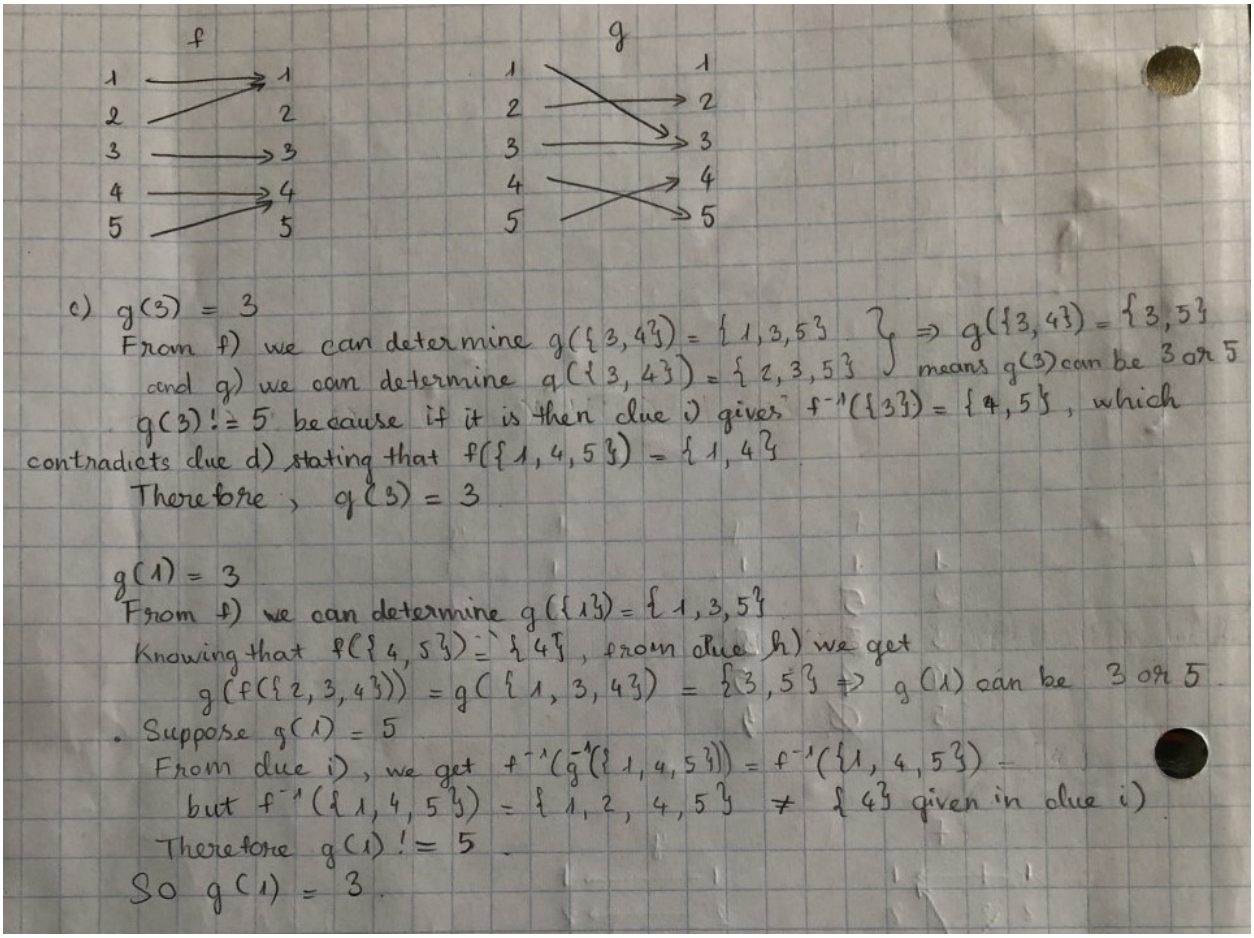
Problem c



c) $g(3) = 3$

From f) we can determine $g(\{3,4\}) = \{1,3,5\}$ and g) we can determine $g(\{3,4\}) = \{2,3,5\}$ $\Rightarrow g(\{3,4\}) = \{3,5\}$ means $g(3)$ can be 3 or 5

$g(3) \neq 5$ because if it is then due i) gives $f^{-1}(\{3\}) = \{4,5\}$, which contradicts due d) stating that $f(\{1,4,5\}) = \{1,4\}$

Therefore, $g(3) = 3$

$g(1) = 3$

From f) we can determine $g(\{1\}) = \{1,3,5\}$

Knowing that $f(\{4,5\}) = \{4\}$, from due h) we get

$g(f(\{2,3,4\})) = g(\{1,3,4\}) = \{3,5\} \Rightarrow g(1)$ can be 3 or 5.

- Suppose $g(1) = 5$

From due i), we get $f^{-1}(g^{-1}(\{1,4,5\})) = f^{-1}(\{1,4,5\})$

but $f^{-1}(\{1,4,5\}) = \{1,2,4,5\} \neq \{4\}$ given in due i)

Therefore $g(1) \neq 5$.

So $g(1) = 3$.