

$$\forall \varphi \quad \varphi \circ \varphi^{-1} = I$$

$$(\varphi \circ g) \circ (\varphi \circ g)^{-1} = I$$

$$(\varphi \circ g) \circ (g^{-1} \circ \varphi^{-1}) = I$$

$$(f \circ g) \circ (g^{-1} \circ f^{-1})(z) =$$

$$(f \circ g)(g^{-1} \circ f^{-1}(z))$$

$$= f \circ g(g^{-1}(f^{-1}(z)))$$

$$= f \circ g(\underbrace{g^{-1}(f^{-1}(z)))}_x) = f \circ g(x)$$

$$= f(g(x)) = f(y) = \textcircled{z}$$

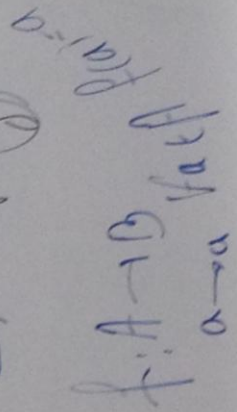
main of

main of

o.p.  $f^{-1}$

the same

$$g^{-1}(y) = x \\ g(x) = y$$



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2014

Practice  $\rightarrow$  on

① Parenthesis the expression  
 $\neg q \wedge (p \rightarrow r) \rightarrow p \vee q$

$$((\neg q) \wedge (p \rightarrow r)) \rightarrow (p \vee q)$$

②

$\uparrow$  remember ①  $\neg$

②  $\wedge$

③  $\vee$

④  $\rightarrow$

⑤  $\leftrightarrow$

③ Exercise 52 [Section 2.3]

$x \in \mathbb{R} \leftarrow$  premise

$n \in \mathbb{Z} \leftarrow$  premise

②  $x \leq n \leftarrow \rightarrow \neg x > n$

$x \leq n \leftarrow$  premise

$\neg x > n \leftarrow x \leq n \leftarrow \neg x > n \leftarrow$  premise