

(2)

$h(x) = 5x$, $g(x) = 2x^2 + 1$. $g, h: \mathbb{R} \rightarrow \mathbb{R}$. l.c. (3)

$(g \circ h)(x) = g(h(x)) = g(5x) = 2(5x)^2 + 1 = 2 \cdot 25x^2 + 1 = 50x^2 + 1$

$(h \circ g)(x) = h(g(x)) = h(2x^2 + 1) = 5 \cdot (2x^2 + 1) = 10x^2 + 5$

$(\forall n \in \mathbb{Z}) . f(n) = |n| + 1 . f: \mathbb{Z} \rightarrow \mathbb{N} \quad ?$

$f(3) = |3| + 1 = 4$: \because f $\forall n \in \mathbb{Z}$ f

$f(-3) = |-3| + 1 = 3 + 1 = 4$: $\forall n \in \mathbb{Z}$

$\therefore \varphi \mathbb{Z} \ni x = y - 1$ $\forall y \in \mathbb{N}$ \exists f

$f(x) = f(y-1) = y$ ✓

$f(x) = |x| + 1$

$f: \mathbb{N} \rightarrow \mathbb{N}$, $\forall x \in \mathbb{N}$, \exists $y \in \mathbb{N}$ $f(y) = x$ $\forall x \in \mathbb{N}$

$R = \{ (x, y) \in P(A) \times P(A) \mid B \cap x = B \cap y \}$ l.c. (4)
 $\forall x \in P(A)$, $B \cap x = B \cap x$ $\therefore (x, x) \in R$ ✓

$\forall x, y \in P(A)$, $(x, y) \in R$ \Downarrow $B \cap x = B \cap y$ \Downarrow $B \cap y = B \cap x$ \Downarrow $(y, x) \in R$ ✓

$\forall x, y, z \in P(A)$, $(x, y) \in R \Rightarrow B \cap x = B \cap y$ \Rightarrow $B \cap x = B \cap y = B \cap z$ \Rightarrow $(x, z) \in R$ ✓