

p211. 6

(1) 双射. 不是单

(2) 双射

(3) 双射

(4) 双射

p211. 9

(1) $n \geq m$

(2) $m \geq n$

(3) $m = n$

p211. 10

(1) ~~$f(1) = a$~~ $f(1) = a, f(2) = b, f(3) = c$

(2) ~~A~~ $kA + C = B \Rightarrow k = 2, C = 1 \therefore f: B = 2A + 1$

(3) $|A| = 2^3 = |B| = 2^3 \therefore$ 一一对应就行

p212. 16

证 $h \circ f = h \circ g \Rightarrow f = g \Leftrightarrow h$ 单射.

$\Rightarrow (\forall x)(h(f(x)) = h(g(x))) \Rightarrow (\forall x)(f(x) = g(x))$

设 $(\exists x)(x \in A \wedge h(x_1) = x \wedge h(x_2) = x) (\exists x_1 \neq x_2)$

$\therefore f: A \rightarrow x_1, g: (\forall x)(x \in A \wedge g(x) = x_2) \therefore f \neq g$ 但 $h \circ f = h \circ g$.

\therefore 矛盾. $\neg (\exists x) \dots \therefore h$ 单射.

$\Leftarrow (\forall x)(h(f(x)) = h(g(x))) \Rightarrow (\forall x)(f(x) = g(x))$