

QUIZ NUMBER THREE FOR MTH 213

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Name _____, Id. Num. _____, Score $\frac{\quad}{10}$

QUESTION 1. Let $H = \{2, 3, \{a, b\}, \{3\}, \{-2, 6\}\}$

How many elements does $P(H)$ have?

(write down T or F)

- 1) $\{a, b\} \subset H$
- 2) $\{\{a, b\}\} \in P(H)$
- 3) $\{3\} \subset H$
- 4) $\{\{3\}, \{-2, 6\}\} \subset P(H)$
- 5) If $D = \{-1, 3, 7\}$, then $H \times D$ has 15 elements.
- 6) If $L = \{7, 8, 0\}$, then $\{(7, \{3\})\} \subset P(L \times H)$

QUESTION 2. 1) Let $f : [0, 4] \rightarrow [6, 8]$ be a bijection function. Then

a) $\forall x \in [0, 4] (f \circ f^{-1})(x) = x$ (b) $f^{-1} \circ f$ is undefined (c) $\exists x \in [6, 8]$
so that $(f \circ f^{-1})(x) \neq x$ (d) $\forall x \in [6, 8]$ we have $(f \circ f^{-1})(x) = x$.

2) Let $f : [0, \infty] \rightarrow [0, \infty]$ such that $f(x) = x^2$, $g : R \rightarrow R$ such that $g(x) = x$.
Then

a) $(g \circ f)(x) = x^2$ (b) $(f \circ g)(x) = x^2$ (c) (a) and (b) are correct (d) none of
the statements are true.

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