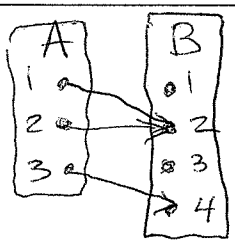
Math 330 (Number Systems), Section 3 Your name: KEY

Quiz 5

March 8, 2010



Let $A = \{1,2,3\}$ and $B = \{1,2,3,4\}$ be the sets and $f : A \to B$ be a function defined by $f(1) = 2$, $f(2) = 2$ and $f(3) = 4$.

1. Find $f(\{1,3\})$ $= \{2, 4\}$

2. Find $f^{-1}(\{2\})$ $= \{1, 2\}$

3. Find a nonempty subset of B whose preimage under f is empty.

$f^{-1}(\{1\}) = \emptyset$

4. How many elements does the set of all subsets of A have?

$2^{|A|} = 2^3 = 8$

Indicate which of the following statements are true

5. $f(3) = 4$

TRUE	FALSE

6. $f(\{3\}) = 4$

TRUE	FALSE

7. $f(2) \in \{1,2\}$

TRUE	FALSE

8. $f(2) \subset \{1,2\}$

TRUE	FALSE

9. $f(\{2\}) \in \{1,2\}$

TRUE	FALSE

10. $f(\{2\}) \subset \{1,2\}$

TRUE	FALSE