

Set theory quiz

Tuesday, January 21, 2014

8:59 PM

① Insert \in , \notin , \subset or $\not\subset$ in the boxes below.

a) $5 \in \{0, 1, 2, 5\}$

b) $u \in \{\text{the alphabet}\}$

c) $0.5 \notin \{0, 1, 2, 3, 4, \dots\}$

d) $10 \in \{0, 1, 2, \dots, 10, 11, 12, \dots\}$

e) $\{2, 3\} \subset \{1, 2, 3, 4\}$

f) $\{1, 2\} \not\subset \{2, 3, 4\}$

g) $\{\text{March, April}\} \subset \{\text{Months of the year}\}$

h) $\{3, 27\} \subset \{\text{Multiples of 3}\}$

i) $\{26, 28\} \not\subset \{\text{Multiples of 4}\}$

② State whether the following sets are finite or infinite.
If they are finite, write down their cardinality.

a) $\{\text{Days of the week}\}$ finite $n=7$

b) $\{\text{Multiples of 10}\}$ infinite

c) $\{\text{American Presidents}\}$ finite $n=44$

③ Write down all subsets of the set $\{1, 2, 3\}$

$\{\}$, $\{1, 2, 3\}$

$\{1\}$ $\{2\}$ $\{3\}$

$\{1, 2\}$ $\{1, 3\}$

$\{2, 3\}$