Task 5

2.1

Q(9)

b) Since 2 is not a perfect square (12 < 2, but n2 > 2 for n > 1), 2 is not an element of this set.

e) This set has two elements, and as we can clearly see, neither of those elements is 2. Both of the elements of this set are sets; 2 is a number, not a set

f) This set has just one element, namely the set { {2}}. So 2 is not an element of this set. Note that {2} is not an element either, since {2} =f. { {2}}.

Q(13)

a) T (in fact x is the only element)

e) T (the empty set is a subset of every set)

f) F (the only element of { x} is a letter, not a set)

Q(21)

a) 1

d) 3

Q(22)

b) This set has one element (the empty set), so its cardinality is 1

c) This set has two elements, so its cardinality is 2.

Q(29)

a) {(a,y), (a,z), (b,y), (b,z), (c,y), (c,z), (d,y), (d,z)}

Q(35)

b) {(1,1),(1,2),(1,a),(1,b),(2,1), (2,2),(2,a),(2,b),(a,1),(a,2),(a,a),(a,b),(~ 1), (~2), (b,a), (~b)}

2.2

Q(2)

a) $A \cap B$

b) $A \cap B$, which is the same as $A - B$

c) $A \cup B$

d) $A \cup B$