a) Let a and b both be the least element of a poset (S, R)
By definition of the least element, a is smaller than or equal to all elements in S

a <= s for all s E S

But b is also an element in S:

a <= b

b is also the least element of S. By the definition of the least element, b is smaller than or equal to all elements in S.

b <= s for all s E S

But a is also an element of S:

b <= a

Since a <= b and b <= a:

a = b

This implies that if a poset contains multiple least elements, then these least elements are identical and are one unique least element.

b) Let a and b both be the greatest element of a poset (S, R)

By the definition of the greatest element, a is larger than or equal to all elements in S

S<= a for all s E S

But, b is also an element in S:

b <= a

b is also the greatest element of S

By the definition of the greatest element, b is larger than or equal to all elements in S

s <= b for all s E S

but a is also an element of S:

a <= b

Since a <= b and b <= a

a = b

Which implies that if a poset contains multiple greatest elements, then these greatest elements are identical and thus there is exactly one unique greatest element in a poset.