Equivalent sets have the same number of elements, or the same cardinality, $n(A) = n(B)$.

- A ***one-to-one correspondence*** between sets A and B means that each elements in A can be paired with exactly one element in B, and vice versa, $n(A) = n(B)$.
- If two sets can be placed in a one-to-one correspondence, then they are equivalent: $n(A) \neq n(B)$.

Equal sets have exactly the same elements, regardless of order or possible repetition of elements. We symbolize the equality of sets A and B using the statement A = B.

- If two sets are equal, then they must be equivalent.

Example 8: i) Are the sets equivalent? ii) Are the sets equal?

a. A = {9, 10, 11, 12, 13}
   B = {8, 9, 10, 11, 12}

b. A = {2, 2, 2, 3, 3, 4, 5, 5}
   B = {5, 4, 3, 2}

c. A = {x | x ∈ Γ and $12 < x \leq 17$}
   B = {x | x ∈ Γ and $20 \leq x < 25$}

Set A is a ***finite set*** if $n(A) = 0$ (that is, A is the empty set) or $n(A)$ is a natural number.

- A set whose cardinality is not 0 or a natural number is called an ***infinite set***.

Example 9: Determine whether each set is finite or infinite.

a. {x | x ∈ □ and $x \geq 50$}

b. {x | x ∈ □ and $x \leq 2{,}000{,}000$}