1. Show that , , and are equivalence relation on the set of integers ()
2. Consider the set . Is this a function from Z to Z? Explain. State domain, codomain, and range of this function. Also state if this function is into function; or, onto function; or, one-to-one function.
3. Is the set a function? If so, what is its domain, codomain and range?
4. Determine, whether the relation *R* on the set of all people is reflexive, symmetric, and transitive where if and only if,

1. *a* is taller than *b*

Not reflexive: I am not taller than myself.

Not symmetric: X is taller than me, I am not taller than X.

Transitive.

1. *a* and *b* are born on same day

Reflexive, Symmetric, Transitive

1. *a* has the same first name as *b*

Reflexive, Symmetric, Transitive.

1. *a* and *b* have same grandparents.

Relation *R* would be like:

Reflexive:

Symmetric: My and my brother's or cousin's grandparents can be same.

Not Transitive: It is not necessary.

1. Determine, whether the relation *R* on the set of all webpages is reflexive, symmetric, and transitive where if and only if,
2. Everyone who has visited webpage *a*, has also visited webpage *b*

Relation *R* could be

Reflexive, not-symmetric, transitive

1. There are no common links found on both webpage *a* and webpage *b*

Relation *R* could be

Not-Reflexive, Symmetric, not-transitive

1. There is a webpage that includes links to both webpage *a* and webpage *b*

Relation *R* could be

Not-Reflexive, Symmetric, not-transitive

1. Calculate time complexity for following loops. Draw table and find value of *k* and range of *k* respectively.



This loop will take time



This loop will take 1) time.

---- Total =