# Q1

**1. is not injective and not surjective.**

Firstly,there’re more than one map to the same ,for example,==25,so this function is not injective.

Secondly,not every element in the co-domain has a paired with as the output of is [1,+∞),which is smaller than the co-domain(R).

**2. is not injective but is surjective.**

Firstly,there’re still more than one map to the given ,for example,==25,so this function is not injective.

Secondly,every element in the co-domain which is [1,+∞) has a paired with,and the co-domain is the same with the range of the output.

**3. is both injective and surjective.**

Firstly,there’re only one map to the given .For example,given a ,it always map to ,which is unique.So if = ,then a=b.

Secondly,every element in the co-domain has a paired with,which equals to .

**4. is both injective and surjective.**

Firstly,there’re only one map to the given .For example,given a ,it always map to ,which is unique.So if = ,then a=b.

Secondly,every element in the co-domain has a paired with,which equals to.

**5. is injective and not surjective.**

Firstly,there’re only one map to the given .For example,given a ,it always map to ,which is also belong to Ｚ and unique.So if = ,then a=b.

Secondly,there are some elements in the co-domain doesn’t have a paired with.For example,given a equals to 4,the correspond equals to ,which is not belong to the domain!

