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**SUBJECT: MATHS**

**CLASS: 12TH STD**

**CHAPTER: RELATIONS & FUNCTIONS**

**EXERCISE: 1.1**

1. Determine whether the following relations are reflexive, symmetric and transitive

Relation **R** in the set **A={1,2,3,4,5,6}** as **R={(x,y) : y is divisible by x}**

1. Check whether the relation **R** defined in the **set {1,2,3,4,5,6}** as **R={(a,b) : b=a+1}** is reflexive, symmetric or transitive.
2. Show that the relation **R** in the **set {1,2,3}** given by **R={(1,2),(2,1)}** is symmetric but neither reflexive nor transitive.
3. Let **R** be the relation in the set **{1,2,3,4}** given by R**={(1,2),(2,2),(1,1),(4,4),(1,3),(3,3),(3,2)}.** Choose the correct answer.
4. **R** is reflexive and symmetric but not transitive.
5. **R** is reflexive and transitive but not symmetric.
6. **R** is symmetric and transitive but not reflexive.
7. **R** is an equivalence relation.

**EXERCISE: 1.2**

1. In each of the following cases, state whether the function is one-one, onto or bijective. Justify your answer.
2. f: **R**$\rightarrow $**R** defined by f(x)=3-4x
3. f: **R**$\rightarrow $**R** defined by f(x)=1+$x^{2}$
4. Let f: **R**$\rightarrow $**R** be defined as **f(x)=**$ x^{4}$. Choose the correct answer.
5. f is one-one onto
6. f is many-one onto
7. f is one-one but not onto
8. f is neither one-one nor onto
9. Let f: **R**$\rightarrow $**R** be defined as **f(x)=**$ 3x$. Choose the correct answer.
10. f is one-one onto
11. f is many-one onto
12. f is one-one but not onto
13. f is neither one-one nor onto

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