



Class 12 Mathematics | Relations And Functions

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. On integers, aRb if $a-b$ is divisible by 3. R is:

- A. Not transitive
- B. Reflexive only
- C. An equivalence relation
- D. Symmetric only

2. On R , aRb if $a < b$. This relation is:

- A. Reflexive and symmetric
- B. An equivalence relation
- C. Symmetric but not transitive
- D. Transitive but not reflexive

3. The function $f:R \rightarrow R$, $f(x)=3x-2$ is:

- A. Onto only
- B. One-one only
- C. One-one and onto
- D. Neither

4. $f:R \rightarrow R$, $f(x)=x^2$ is:

- A. Onto only
- B. Neither one-one nor onto
- C. One-one and onto
- D. One-one only

5. $f:[0,\infty) \rightarrow [0,\infty)$, $f(x)=x^2$ is:

- A. Only one-one
- B. Neither
- C. Only onto
- D. Bijective

6. On a set of 3 elements, the identity relation has how many pairs?

- A. 1
- B. 9
- C. 3
- D. 6

7. The universal relation on a nonempty set is:

- A. Not reflexive
- B. Not symmetric
- C. An equivalence relation
- D. Not transitive

8. For $A=\{1,2\}$, which relation is reflexive?

- A. $\{(1,1),(2,2)\}$
- B. $\{(1,1)\}$
- C. $\emptyset$
- D. $\{(1,2),(2,1)\}$

9. For $A=\{1,2\}$, $R=\{(1,1),(2,2),(1,2)\}$ is:

- A. Symmetric only
- B. An equivalence relation
- C. Not reflexive
- D. Reflexive and transitive, not symmetric

10. $f:R \rightarrow R$, $f(x)=x^3$ is:

- A. Bijective
- B. Only one-one
- C. Only onto
- D. Neither

11. Which function $R \rightarrow R$ is one-one?

- A. $f(x)=\sin x$
- B. $f(x)=x^2$
- C. $f(x)=5x+7$
- D. $f(x)=3$

12. On R , aRb if $a^2=b^2$. R is:

- A. An equivalence relation
- B. Not symmetric
- C. Not reflexive
- D. Not transitive

13. If $f:A \rightarrow B$ is onto, then its range equals:

- A. B
- B. $\emptyset$
- C. $A \cap B$ always
- D. A

14. A function is one-one if:

- A. Its range is empty
- B. $a=b$ implies $f(a)=f(b)$ only
- C. Every output has two inputs
- D. $f(a)=f(b)$ implies $a=b$

15. The relation aRb iff $a=b$ on R is:

- A. Reflexive only
- B. Transitive only
- C. Symmetric only
- D. Reflexive, symmetric and transitive

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.C 4.B 5.D 6.C 7.C 8.A 9.D 10.A 11.C 12.A 13.A 14.D 15.D