

CLASS 12

MATHEMATICS

REVISION NOTES

Class 12 Mathematics Chapter 1 Revision Notes – Relations and Functions

Need full answers or more practice? See the Class 12 Mathematics Chapter 1 Solutions and Class 12 Mathematics Chapter 1 Extra Questions. These Class 12 Mathematics Chapter 1 notes are ideal for quick revision just before exams.

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Relation: a subset R of $A \times A$; write aRb to mean $(a,b) \in R$.

Reflexive: $(a,a) \in R$ for every $a \in A$.

Symmetric: $(a,b) \in R \Rightarrow (b,a) \in R$.

Transitive: $(a,b) \in R$ and $(b,c) \in R \Rightarrow (a,c) \in R$.

Equivalence relation: reflexive + symmetric + transitive together. Partitions the set into disjoint equivalence classes.

One-one (injective): $f(x_1) = f(x_2) \Rightarrow x_1 = x_2$.

Onto (surjective): $\text{range}(f) = \text{co-domain}$.

Bijective: both one-one and onto — the only kind of function that is invertible.

Key results: if $f:A \rightarrow B$ and $g:B \rightarrow C$ are both bijective, $gof:A \rightarrow C$ is bijective and $(gof)^{-1} = f^{-1}og^{-1}$.

Standard non-injective/non-surjective functions on $\mathbb{R} \rightarrow \mathbb{R}$: Modulus $|x|$, Greatest Integer $[x]$, Signum function.

Binary operation: a function $*:A \times A \rightarrow A$. Commutative if $a*b = b*a$; associative if $(a*b)*c = a*(b*c)$; identity e satisfies $a*e = e*a = a$; a is invertible if some b gives $a*b = b*a = e$.

Syllabus note (2026-27): 2 exercises + Miscellaneous — 1.1 (16Q), 1.2 (12Q), Miscellaneous (19Q), 47 questions total.

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