CLASS 12

RBSE BOARD ZONE

PREVIOUS YEAR QUESTIONS

CHAPTER-WISE

MATHEMATICS

ALL QUESTIONS OF LAST 12 YEAR'S OF RAJASTHAN BOARD

- Available For Hindi & English Medium
- Questions From 2013-2024
- RBSE Examination 2024-25
- Based on Rationalised NCERT 2023-24
- ALL Repeated Questions Are Mentioned

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RELATIONS AND FUNCTIONS

1. If R and S are equivalence relation in a set A, then show that relation R ∩ S is also an equivalence relation. [3M]

(RBSE 2013)

2. Show that the relation R in the set R of real numbers, defined R = {(a, b): $a \leq b^2$} is neither reflexive nor symmetric nor transitive. [3M]

(RBSE 2014)

3. Let f: N→Y be a function defined as, $f(x) = 4x + 3$, where Y = {y ∈ N : y = 4x + 3 for some x ∈ N} . Show that f is invertible. Find the inverse function. [3M]

(RBSE 2014)

4. Prove that the relation R defined on set Z as a R b ⇔ a − b is divisible by 3, is an equivalence relation. [3M]

(RBSE 2017,RBSE 2015)

5. If functions f, g : R→R are defined as $f(x) = x^2 + 1$, $g(x) = 2x - 3$, then find f o g (x), g o f(x) and g o g (3). [3 MARKS]

(RBSE 2015)

6. Prove that the relation R in set of real numbers R defined as R = {(a, b): a≥b} is reflexive and transitive but not symmetric. [3M]

(RBSE 2016)

7. Consider f: R→R given by f (x) = 2x + 3. Show that f is invertible. Find also the inverse of function f. [3M]

(RBSE 2016, RBSE 2022)

8. Prove that the relation R defined on set Z as a R b⇔ a - b is divisible by 3 is an equivalence relation. [3M]

(RBSE 2015,RBSE 2017)

9. If function f, g : R→R are defined as $f(x) = x^2$, $g(x) = 2x$, then find f o g (x), g o f(x) and f o f (3). [3M]

(RBSE 2017)

10. If $f : R \to R$ and $g : R \to R$, are defined such that $f(x) = x^2 + 3$; $g(x) = 1 - \frac{1}{(1-X)}$ then find gof(x) and fog(x). [1M]

(RBSE 2018)

11. If $f: R \to R$, $f(x) = x^2 - 5x + 7$, then find the value of $f^{-1}(1)$. [2M]
(RBSE 2018)

12. If $f: R \to R$, $f(x) = \sin x$ and $g: R \to R$, $g(x) = x^2$ then find $gof(x)$. [1M]
(RBSE 2019)

13. If $f(x) = \frac{x-3}{x+1}$, then find $f[f\{f(x)\}]$. [2M]
(RBSE 2019)

14. If $f: R \to R$, $f(x) = x^2 + 5x + 9$, then find the value of $f^{-1}(8)$ and $f^{-1}(9)$. [1M]
(RBSE 2020)

15. If $f: R \to R$ be defined $f(x) = x^4$, then the function. [1M]

(a) f is one-one and onto

(b) f is many-one-onto

(c) f is one-one but not onto

(d) f is neither one-one nor onto

(RBSE 2022)

16. If $f(x) = 27x^3$ and $g(x) = x^{1/3}$, then $gof(x)$: _____. [1M] (RBSE 2022)

17. Show that the function $f: N \to N$. given by $f(x) = 2x$ is not onto. [1M] (RBSE 2022)

18. Considering $f: R \to R$ given by $f(x) = 2x + 3$, prove that f is invertible.[2M] (RBSE 20216, RBSE 2022)

19. If $f: R \to R$, $f(x) = \sin x$ and $g: R \to R$, $g(x) = x^2$ then $(fog)(x)$ is equal to: [1M]

(a) $\sin x^2$

(b) $\sin x$

(c) $\sin^2 x^2$

(d) $\sin^2 x$

(RBSE 2023)

20. 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 in the given options.
(A) R is reflexive and symmetric but not transitive.
(B) R is reflexive and transitive but not symmetric.
(C) R is symmetric and transitive but not reflexive.

(D) R is an equivalence relation.

(RBSE 2024)

21. Prove that the relation R in the set {1,2,3} given by R = {(1,2), (2,1)} is symmetric but neither reflexive nor transitive. [2M]

(RBSE 2024)

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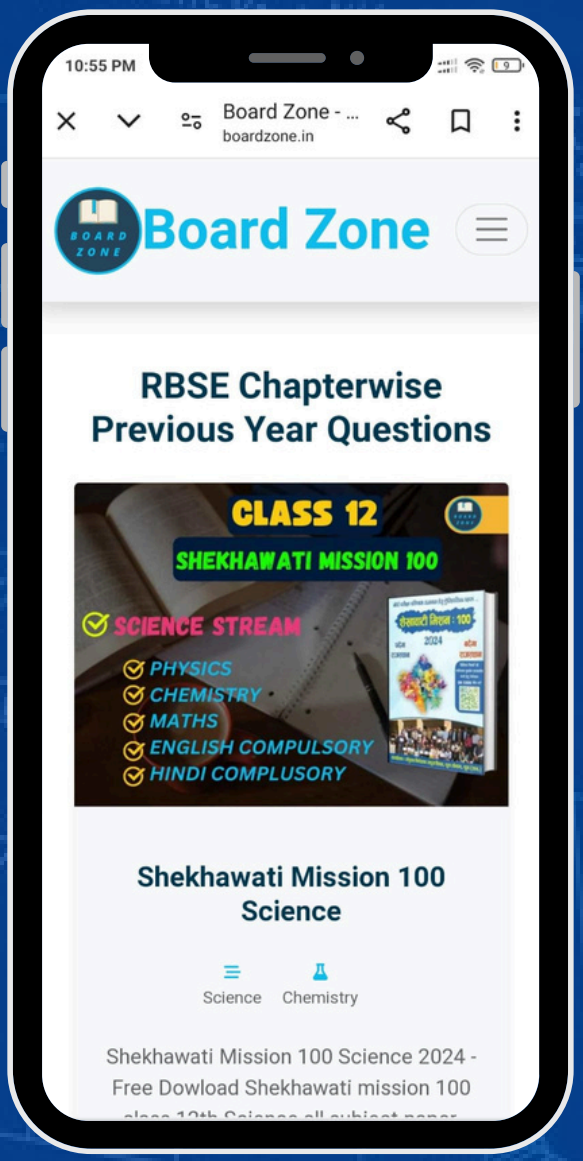

- Chapter-wise PYQ
- Handwritten Notes
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