NON TECHNICAL : COMPETITIVE DEPARTMENT

Algebra Competitive Maths Hand Note

Hand Notes For SSC, CGL, CHSL, CPO, CDS, All Gov. Exams …

Hand Notes

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Algebra Competitive Maths Hand Note

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ALGEBRA

Best Notes for SSC (CHSL, CGL & CPO)

§ Some Basic formulae · (याद रखने योग्य सूत्र)

- $(a+b)^2 = (a+b)(a+b) = a^2 + b^2 + 2ab$
- $(a-b)^2 = (a-b)(a-b) = a^2 + b^2 - 2ab$
- $a^2 - b^2 = (a+b)(a-b)$
- $(a+b)^3 = a^3 + b^3 + 3ab(a+b)$ `martcast.com`
- $a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$
- $a^3 + b^3 = (a+b)((a+b)^2 - 3ab)$
- $(a-b)^3 = a^3 - b^3 - 3ab(a-b)$ `MKSRD Maths`
- $a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$
- $a^3 - b^3 = (a-b)((a-b)^2 + 3ab)$
- $(a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$
- $(a+b+c)^3 = a^3 + b^3 + c^3 + 3(a+b)(b+c)(c+a)$

✳ Type-①:- $\boxed{\text{If } x + \dfrac{1}{x} = k \text{ then } x^2 + \dfrac{1}{x^2} = k^2 - 2}$

Proof.   Given $x + \dfrac{1}{x} = k$

squaring both sides (वर्ग करने पर)

$$\left(x + \tfrac{1}{x}\right)^2 = (k)^2$$

$$x^2 + \frac{1}{x^2} + 2 \times \cancel{x} \times \frac{1}{\cancel{x}} = k^2$$

∴ $\boxed{x^2 + \dfrac{1}{x^2} = k^2 - 2}$

eg. If $x + \dfrac{1}{x} = 5$ then $x^2 + \dfrac{1}{x^2} = (5)^2 - 2 = 23$

y. If $x + \dfrac{1}{x} = 4\sqrt{2}$ then $x^2 + \dfrac{1}{x^2} = (4\sqrt{2})^2 - 2 = 30$

✱ Topic covered :- ALGEBRA BEST NOTES

1. $x + \frac{1}{x} = k$ based all basic Types.

2. $x - \frac{1}{x} = k$ based all basic Types

3. $x^3 + y^3 + z^3 - 3xyz$ based all types

4. Concept of zero

5. Concept of Value putting

6. Concept of Symmetry

7. Questions based on $a^3 + b^3$, $a^3 - b^3$ and $a^2 - b^2$.

8. Concept of $px^2 + qy^2 + rz^2 = 2(ax + by + cz) \pm k$

9. Concept of $ab = 1$

10. Polynomial

11. Degree of Polynomial

12. factorisation

13. Concept of Remainder theorem

14. Quadratic Equation, Cubic Equation

15. Concept of Inequality

16. Maximum and Minimum value of Algebric function

17. Special Types Questions asked in CGL & CPO

18. Concept of if $x + y + z = 0$

19. Questions based on $x^2 + y^2 + z^2 = 0$

20. Miscellaneous Practice of Recently asked Questions
    · in CHSL, CDS, CGL & CPO !

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