

CLASS XI MATHS

PROBLEMS ON SIMPLIFICATION :

1. $\frac{\frac{a}{a-b} + \frac{b}{b-c} + \frac{c}{c-a}}{\frac{a+b}{a-b} + \frac{b+c}{b-c} + \frac{c+a}{c-a}} + 3$ [Ans: $\frac{1}{2}$]
2. $\frac{\frac{a}{a-x} + \frac{b}{b-x} + \frac{c}{c-x}}{\frac{3}{x} - \frac{1}{x-a} - \frac{1}{x-b} - \frac{1}{x-c}}$ [Ans: x]
3. $\frac{\frac{a^2}{x-a} + \frac{b^2}{x-b} + \frac{c^2}{x-c} + a + b + c}{\frac{a}{x-a} + \frac{b}{x-b} + \frac{c}{x-c}}$ [Ans: x]
4. $\frac{1}{(c-a)(c-b)} + \frac{1}{(a-b)(a-c)} + \frac{1}{(b-c)(b-a)}$.
5. $\frac{a+b}{(c-a)(c-b)} + \frac{b+c}{(a-b)(a-c)} + \frac{c+a}{(b-c)(b-a)}$
6. $\frac{a-b}{c^2 - (a-b)^2} + \frac{b-c}{a^2 - (b-c)^2} + \frac{c-a}{b^2 - (c-a)^2}$.
7. $\frac{a+b}{2ab}(a+b-c) + \frac{b+c}{2bc}(b+c-a) + \frac{c+a}{2ca}(c+a-b)$ [Ans: 3]
8. $\frac{a+b}{2ab}(a^2 + b^2 - c^2) + \frac{b+c}{2bc}(b^2 + c^2 - a^2) + \frac{c+a}{2ca}(c^2 + a^2 - b^2)$ [Ans: (a+b+c)]
9. $\frac{a^2 + ab + b^2}{(c-a)(c-b)} + \frac{b^2 + bc + c^2}{(a-b)(a-c)} + \frac{c^2 + ca + a^2}{(b-c)(b-a)}$ [Ans: 0]
10. $\frac{3a-b-c}{(a-b)(a-c)} + \frac{3b-c-a}{(b-c)(b-a)} + \frac{3c-a-b}{(c-a)(c-b)}$ [Ans: 0]
11. $\frac{a}{(b-a)(a-c)} + \frac{b}{(c-b)(b-a)} + \frac{c}{(a-c)(c-b)}$