

Q2. The total number of terms in the expansion of $(x + a)^{100} + (x - a)^{100}$ after simplification is

- (a) 50
- (b) 202
- (c) 51
- (d) none of these

Sol. (c) We have, $(x + a)^{100} + (x - a)^{100}$

$$\begin{aligned} &= ({}^{100}C_0x^{100} + {}^{100}C_1x^{99}a + {}^{100}C_2x^{98}a^2 + \dots) \\ &\quad + ({}^{100}C_0x^{100} - {}^{100}C_1x^{99}a + {}^{100}C_2x^{98}a^2 + \dots) \\ &= 2({}^{100}C_0x^{100} + {}^{100}C_2x^{98}a^2 + \dots + {}^{100}C_{100}a^{100}) \end{aligned}$$

So, there are 51 terms.