

The value of a for which the sum of the squares of the roots of the equation $x^2 - (a - 2)x - a - 1 = 0$ assume the least value is

- (a) 1
- (b) 0
- (c) 3
- (d) 2

Solution:

Given $x^2 - (a - 2)x - a - 1 = 0$

Sum of roots, $\alpha + \beta = (a - 2)$

Product of roots, $\alpha\beta = -a - 1$

Sum of squares of roots = $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta$

= $a^2 - 2a + 6$

= $(a - 1)^2 + 5$

=> $a = 1$