

TOPIC

Mathematics – Section I – Question 12

QUESTIONThe second order polynomial $ax^2 + bx + c$ have complex zeros when

- (A) $b^2 - 4ac = 0$
- (B) $b^2 - 4ac < 0$
- (C) $b^2 - 4ac > 0$
- (D) $b^2 - 4ac \geq 0$

HINT

Note the discriminant

SOLUTION

A second order polynomial

$$ax^2 + bx + c$$

has two zeros

$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$
$$x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

So when

$$b^2 - 4ac < 0$$

the square root of a negative number has to be taken to find the root. This results in complex roots.

ANSWER

(B)

CONTRIBUTOR

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