Question

Question ID: 893

23. How many pairs of real numbers (x, y) satisfy the equation $(x + y)^2 = (x + 3)(y - 3)$?

A 0 B 1 C 2 D 4 E infinitely many

Answer

23. B Let $X = x + 3$ and $Y = y - 3$. Then the given equation becomes $(X + Y)^2 = XY$. So $X^2 + XY + Y^2 = 0$. However X^2, Y^2 and $XY\,(= (X + Y)^2)$ are non-negative. Hence $X = Y = 0$; so $x = -3$ and $y = 3$ is the only solution.