



Air maths tuition

Interact, engage and perform

Mod Equations: How to solve $|3x+9|=|2x+1|$

Solve $|3x+9| = |2x+1|$

$\therefore 3|x+3| = |2x+1|$

At (A) $-(3x+9) = -(2x+1)$

$\therefore -3x - 9 = -2x - 1$

$\therefore x = -8$

At (B) $3x+9 = -(2x+1)$

$\therefore 3x+9 = -2x-1$

$\therefore 5x = -10$

$\therefore x = -2$

$\therefore x = -8, x = -2$

$y = |3x+9|$

$y = |2x+1|$

$(3x+9)^2 = (2x+1)^2$

$\therefore 9x^2 + 54x + 81 = 4x^2 + 4x + 1$

$\therefore 5x^2 + 50x + 80 = 0$

$\therefore x^2 + 10x + 16 = 0 \Rightarrow (x+8)(x+2) = 0$

$\therefore x = -8, x = -2$

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