$$\underbrace{(x^2+4x+3)\cdot(x^2-9)}_{E(x)} < 0 \qquad (1)$$

$x^2+4x+3 = x^2+3x+x+3 = x(x+3)+(x+3)\cdot 1 =$

$= (x+3)(x+1)$

$x^2+4x+3=0 \iff x+3=0$ SAU $x+1=0$

$x=-3$ $\qquad$ $x=-1$

$x^2-9=0 \iff x^2-3^2=0 \iff (x-3)(x+3)=0$

$\iff x=3$ SAU $x=-3$

$(1) \iff (x+3)(x+1)(x-3)(x+3) < 0 \iff$

$$(x+3)^2\cdot(x+1)(x-3)<0$$

x	$-\infty$	-3	-1	0	3	$+\infty$
$(x+3)^2$	$+$	0	$+$	$+$	$+$	$+$
$x+1$	$-$	$-$	0	$+$	$+$	$+$
$x-3$	$-$	$-$	$-$	$-$	0	$+$
$E(x)$	$+$	0	$+$	0	$-$	$+$

$S = (-1;3)$

$m \in \mathbb{R}$ - parametru -

$m \cdot x - 3 \geq x + 1$, $2 \in S \Rightarrow m = ?$

$2 \in S \Rightarrow m \cdot 2 - 3 \geq 2 + 1 \Leftrightarrow 2m \geq 3 + 3 \Leftrightarrow$

$2m \geq 6 \Leftrightarrow m \geq \frac{6}{2} \Leftrightarrow m \geq 3$

$\Rightarrow m \in [3, +\infty)$

PROBĂ: $m = 5 \Rightarrow 5x - 3 \geq x + 1 \Leftrightarrow$

$4x \geq 4 \Leftrightarrow x \geq 1 \Rightarrow$

$S = [1, +\infty)$, $2 \in S$ (A)

$x \cdot m - 6 \geq x + 1$, $-1 \in S \Rightarrow m = ?$

$-1 \in S \Rightarrow (-1) \cdot m - 6 \geq -1 + 1 \Leftrightarrow$

$-m \geq 6 \mid \cdot (-1) \Rightarrow m \leq -6$

Răspuns: $m \in (-\infty, -6]$

$m \cdot (x - 3) + x < x + 5$, $3 \in S \Rightarrow m$

$3 \in S \Rightarrow m \cdot (3 - 3) + 3 < 3 + 5 \Leftrightarrow$

$m \cdot 0 < 5 \Rightarrow m \in \mathbb{R}$

Rāspuns: $m \in \mathbb{R}$

Probă: $m = -1$

$(-1)\cdot(x-3) + x < x+5 \iff$

$-x + 3 + x < x + 5 \iff$

$3 - 5 < x \iff x > -2$

$S = (-2, +\infty)$, $3 \in (-2, +\infty)$ (A)

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