Q1) $|x+1| + 2|x-1| < b$

Case 1: $X < -1$ ①

$|x+1| + 2|X-1| < b$

$\Rightarrow -(x+1) + 2(-(x-1)) < b$

$\Rightarrow -x-1 -2x +2 < b$

$\Rightarrow -3x + 1 < b$

Sub $x < -1$ in (from ①)

$-3x + 1 < -3(-1) +1 < b$

$\Rightarrow 3 + 1 < b$

∴ $4 < b$

Case 2: $-1 \le x < 1$ ②

$|x+1| + 2|x-1| < b$

$\Rightarrow x+1 + 2(-(x-1)) < b$

$\Rightarrow x+1 -2x +2 < b$

$\Rightarrow -x + 3 < b$

Sub $x < 1$ in (from ②)

$-x +3 < -1 +3 < b$

$\Rightarrow -1 +3 < b$

∴ $2 < b$

Case 3: $x \ge 1$ ③

$|x+1| + 2|x-1| < b$

$\Rightarrow x+1 + 2(x-1) < b$

$\Rightarrow x+1 + 2x - 2 < b$

$\Rightarrow 3x - 1 < b$

Sub $x \ge 1$ in (from ③)

$3(1)-1 \le 3x-1 < b$

$\Rightarrow 3-1 < b$

∴ $2 < b$

$\Rightarrow$ b must be greater then two for the inequality to have a solution. If b is less then or equal to two, the inequality will have no solutions

∴ if $b \in (-\infty, 2]$, the inequality will have no solutions.