$|2x+1| \leqq 3$
$-3 \leqq 2x+1 \leqq 3$
$-4 \leqq 2x \leqq 2$
$-2 \leqq x \leqq 1$

$|2x+1| \leqq a$
$-a \leqq 2x+1 \leqq a$
$-a-1 \leqq 2x \leqq a-1$
$\frac{-1-a}{2} \leqq x \leqq \frac{-1+a}{2}$

$a=3$で $-2 \leqq x \leqq 1$

$x=-2, -1, 0, 1$ より $N=4$

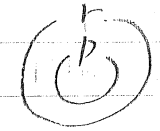
$a=4$で $\frac{-5}{2} \leqq x \leqq \frac{3}{2}$

$a=5$で $-3 \leqq x \leqq 2$

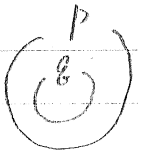
P: $m>k$ or $n>k$
$\overline{P}$: $m \leqq k$ and $n \leqq k$ より ②

$k=1$ のとき P: $m>1$, or $n>1$
g: $mn>1$
m, nは自然数であるから
$P \Rightarrow g$, $g \Rightarrow P$ OK
必要十分 で ①

$k=2$で P: $m>2$ or $n>2$
r: $mn>2$
$P \Rightarrow r$ OK
$r \Rightarrow P$ NG (2, 2) Pは十分条件 ②



$k=2$で P: $m>2$ or $n>2$
g: $mn>4$
$P \Rightarrow g$ NG (1, 3)
$g \Rightarrow P$ OK Pは必要条件



(m, n)	P	r	g
$(1, 1)$	×	×	×
$(1, 2)$	×	×	×
$(1, 3)$	○	○	×
$(1, 4)$	○	○	×
$(1, 5)$	○	○	○
$(2, 2)$	×	○	×
$(2, 3)$	○	○	○

No.

Date

$y = -x^2 + (2a+4)x + b$

$y' = 0$ で

$-2x + 2a + 4 = 0$

$-x + a + 2 = 0$

$x = a + 2$

$f(a+2) = -(a+2)^2 + 2(a+2)(a+2) + b$

$= (a+2)^2 + b$

$= a^2 + 4a + 4 + b$

$(a+2,\ a^2+4a+4+b)$

$a^2+4a+4+b = -4(a+2) - 1$

$a^2+4a+4+b = -4a - 9$

$b = -a^2 - 8a - 13$

頂点の y 座標 > 0 より

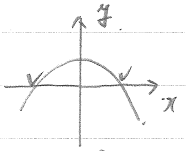
$a^2 + 4a + 4 + b > 0$

$a^2 + 4a + 4 - a^2 - 8a - 13 > 0$

$-4a - 9 > 0$

$-4a > 9$

$a < -\frac{9}{4}$



$f(0) = b = -a^2 - 8a - 13 > 0$

$a^2 + 8a + 13 < 0$

$a = -4 \pm \sqrt{16 - 13}$

$= -4 \pm \sqrt{3}$

$-4 - \sqrt{3} < a < -4 + \sqrt{3}$

$f(0) = -a^2 - 8a - 13 = -22$

$a^2 + 8a - 9 = 0$

$(a+9)(a-1) = 0$

$a = -9,\ 1$

ただし $2 < a+2$

$a > 0$ より $a = 1$

$f(4) = -16 + 4(2a+4) + b$

$= 8a - a^2 - 8a - 13$

$= -a^2 - 13 = -22$

$a^2 = 9$

$a = \pm 3$

ただし $a+2 < 2$

$a < 0$ $a = -3$

$a = 1$ で $y = -x^2 + 6x + b$

$y = -9 + 18 + (-1 - 8 - 13)$

$= -13$

$a = 1$ で $b = -22$ $y = -x^2 + 6x - 22$

$a = -3$ で $b = 2$ $y = -x^2 - 2x + 2$

$y = -x^2 - 2x + 2$

$= -(x^2 + 2x + 1) + 2 + 1$

$= -(x+1)^2 + 3$ ⟶

$a = -3$

$y = -x^2 + 6x - 22$

$= -(x^2 - 6x + 9) - 22 + 9$

$= -(x-3)^2 - 13$

$a = 1$

x 軸 $+4$ y 軸 -16

$-1 \longrightarrow 3$

$3 \longrightarrow -13$