$$\bar{n}_1' = (2x_1+1)(2u_1+1) - 2\Delta_1 \cdot \Delta x_{1,2} + \alpha_1$$

$$\bar{n}_2' = \underbrace{(2x_1+1)(2x_1'+1)}_{=:(2x_2+1)}(2u_2+1) - 2\Delta_2 \Delta x_{1,2} + \alpha_2$$

$\Rightarrow \quad \bar{n}_1' = \bar{n}_2'$

$$(2x_1+1)(2u_1+1) - 2\Delta_1\Delta x_{1,2} + \alpha_1 = (2x_1+1)(2x_1'+1)(2u_2+1) - 2\Delta_2\Delta x_{1,2} + \alpha_2$$

$$\Leftrightarrow \quad (2x_1+1)(2u_1+1) = (2x_1+1)(2x_1'+1)(2u_2+1) - 2\Delta_2\Delta x_{1,2} + 2\Delta_1\Delta x_{1,2} + \alpha_2 - \alpha_1$$

$$\Leftrightarrow \quad (2u_1+1) = (2x_1+1)(2u_2+1) + 2\frac{(-\Delta_2+\Delta_1)\Delta x_{1,2}}{2x_1+1} \quad (*)$$

$\lightning$

$$+\frac{2(-\Delta_2+\Delta_1)\Delta x_{1,2} + \alpha_2 - \alpha_1}{2x_1+1}$$

$$\alpha_2 = \alpha_2' \cdot \Delta x_{1,2}$$

$$\alpha_1 = \alpha_1' \cdot \Delta x_{1,2}$$

$$\Rightarrow \quad + \frac{2(-\Delta_2+\Delta_1)\Delta x_{1,2} + (\alpha_2' - \alpha_1')\cdot \Delta x_{1,2}}{2x_1+1}$$

$$= \Delta x_{1,2} \cdot \frac{2(-\Delta_2+\Delta_1) + (\alpha_2' - \alpha_1')}{2x_1+1}$$

I. $(2x_1+1)$

II. $(2x_2+1) = (2x_1+1)(2x_1'+1) = 2\cdot(\underbrace{2x_1x_1' + x_1 + x_1'}_{=x_2})+1$

$\underline{x_2 > x_1}$

$$\Rightarrow \quad \Delta x_{1,2} = x_2 - x_1 = (2x_1x_1' + x_1 + x_1') - x_1$$

$$= 2x_1x_1' + \cancel{x_1} + x_1' - \cancel{x_1}$$

$$= 2x_1x_1' + x_1'$$

$$\boxed{\Delta x_{1,2} = (2x_1+1)x_1'}$$

$\Rightarrow$ This is integer divisible by $(2x_1+1)$!

$$\Rightarrow \quad (*) = 2\frac{(-\Delta_2+\Delta_1)\Delta x_{1,2}}{2x_1+1} = 2\frac{(-\Delta_2+\Delta_1)\cancel{(2x_1+1)}x_1'}{\cancel{2x_1+1}}$$

$$= 2(-\Delta_2+\Delta_1)x_1 \quad \Rightarrow \quad \boxed{2u_1+1 = (2x_1+1)(2u_2+1) + 2(-\Delta_2+\Delta_1)x_1}$$