

Part (a)(i)

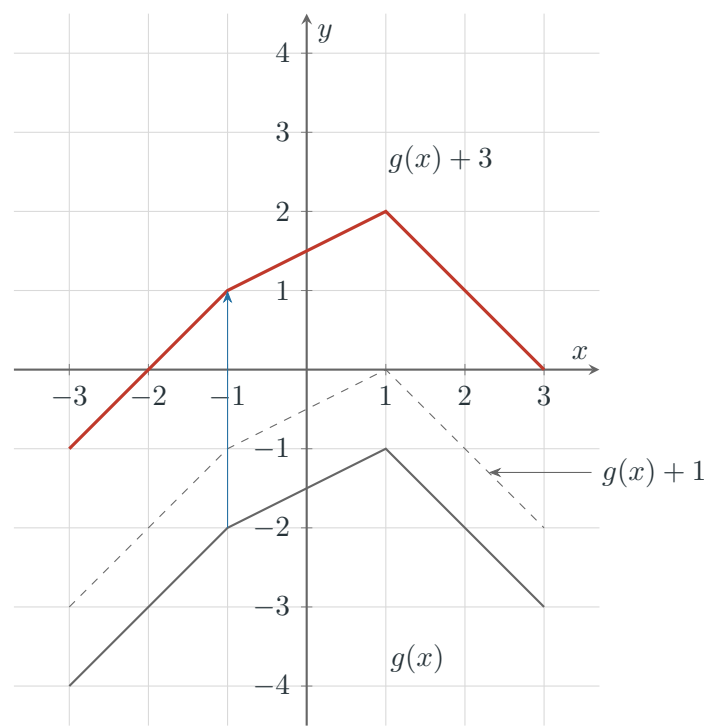
Game plan: Keep every x -coordinate fixed and add 3 to each height on the graph of g .

Step 1: Move the vertices up by 3

The original vertices $(-3, -4)$, $(-1, -2)$, $(1, -1)$, and $(3, -3)$ become:

$(-3, -1), \quad (-1, 1), \quad (1, 2), \quad (3, 0).$

Join them with the same straight segments. The red graph below is the required answer.

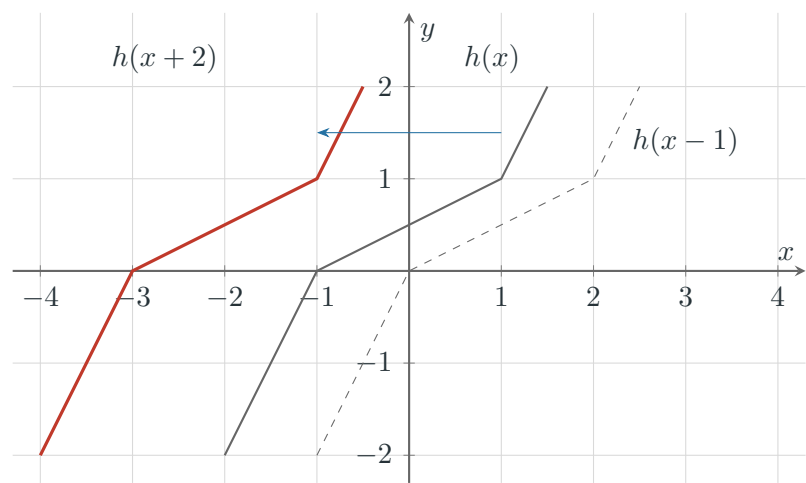


Part (a)(ii)

Game plan: Move the graph of h two units to the left. Keep all its heights unchanged.

Step 1: Find where each old input now appears

For example, the old input -1 now occurs when $x + 2 = -1$, which gives $x = -3$. So the point $(-1, 0)$ moves to $(-3, 0)$. Likewise, the corner $(1, 1)$ moves to $(-1, 1)$.



Final Answer

$g(x) + 3$: up 3 units.
 $h(x + 2)$: left 2 units.