

# AStar BII Test

## Question 7.1 Part a

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Given a 2-dimensional grid with  $L_1$  rows and  $L_2$  columns,  $f$  maps  $(x_1, x_2)$  coordinates to the index while  $g_1$  and  $g_2$  map an index  $I$  to  $x_1$  and  $x_2$  respectively.

$$f(x_1, x_2) = x_2 \cdot L_1 + x_1$$

$$g_1(I) = I \bmod L_1$$

$$g_2(I) = \frac{I - g_1(I)}{L_1}$$