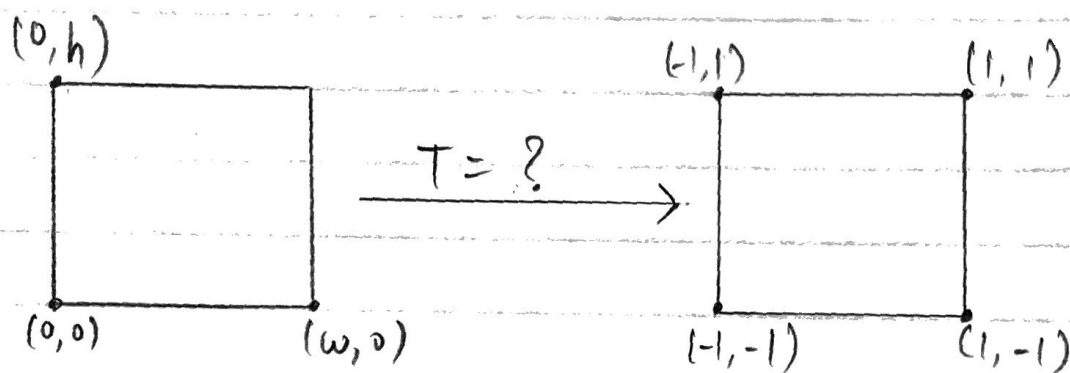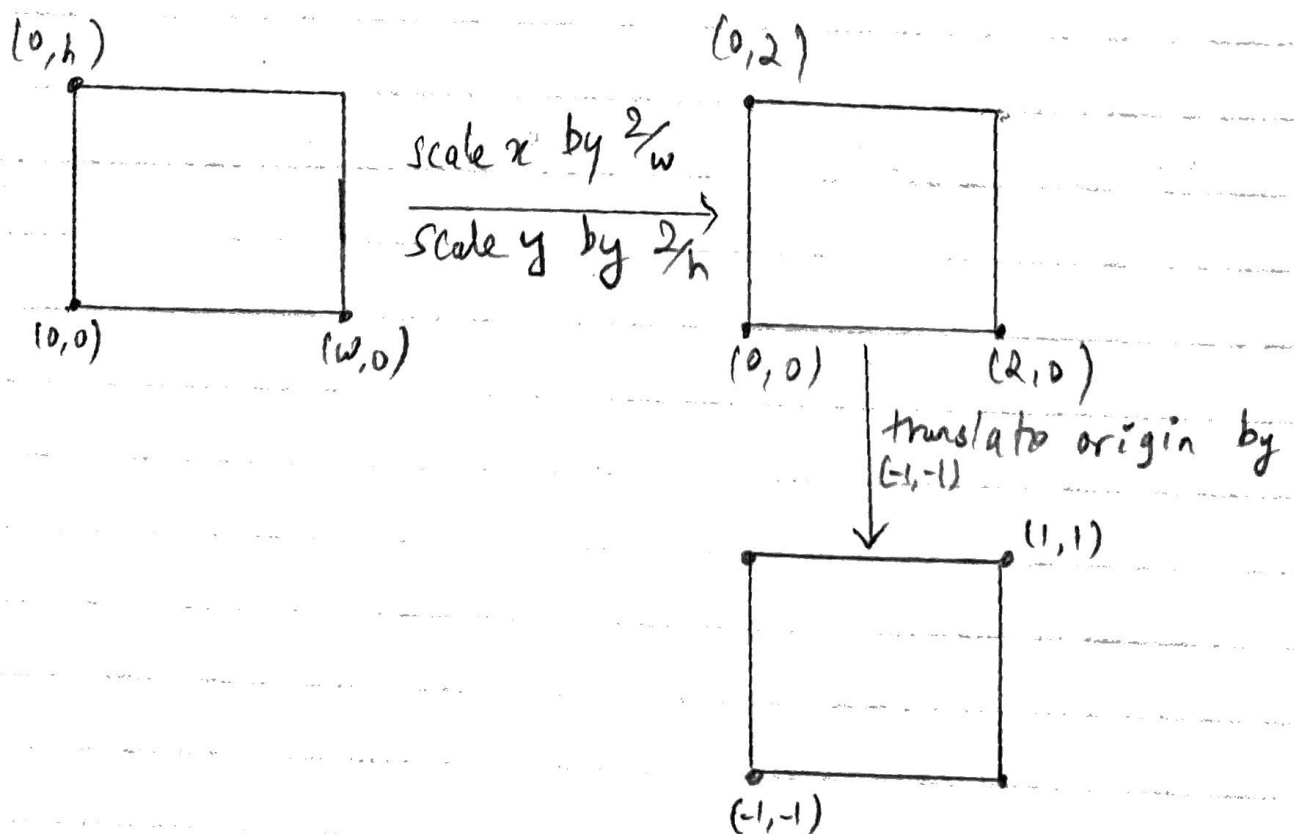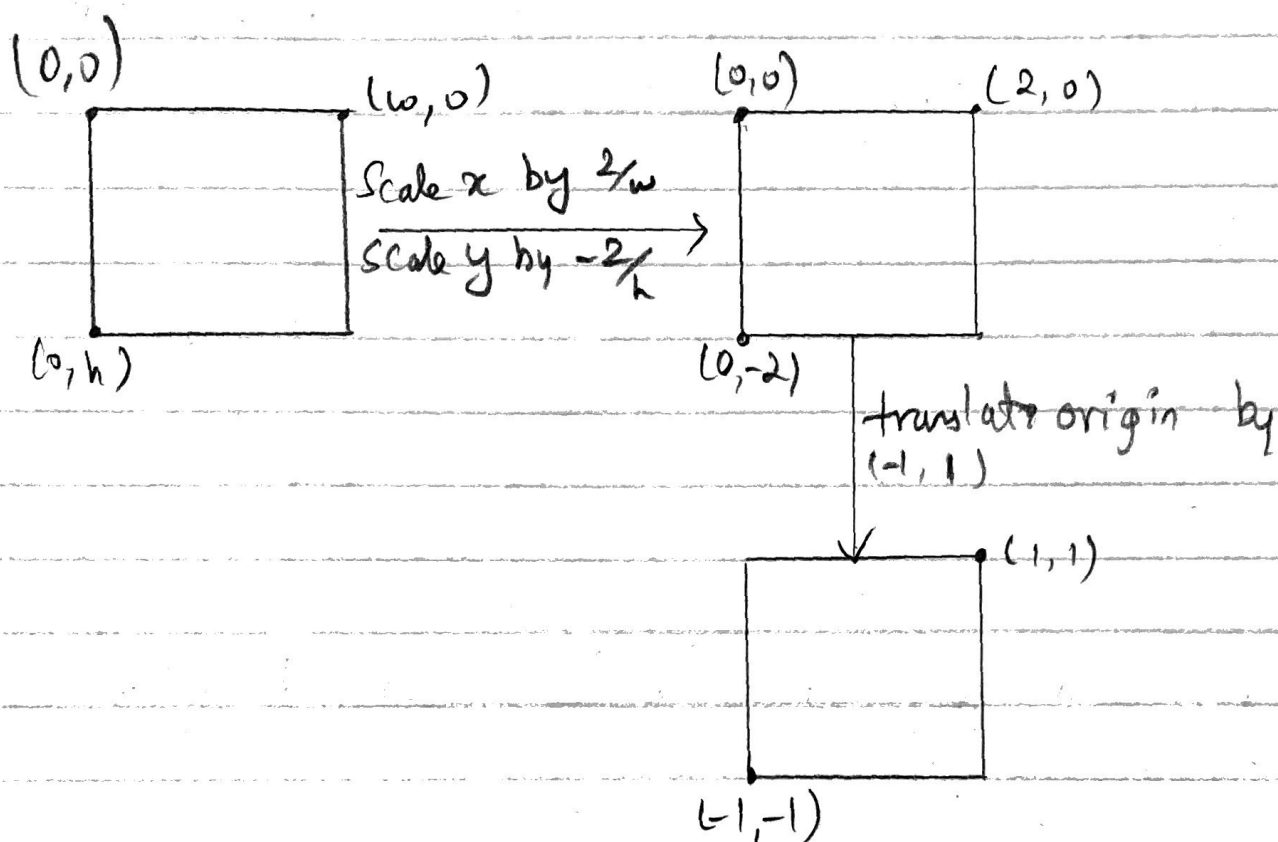# EXPRESSING WORLD POSITION AS 2D PIXEL COORDINATES

Expressing our world in terms of 2D pixel coordinates is handy for 2D orthographic drawings like 2D layout, font rendering, pixel drawing, etc. We ought to transform these pixel positions to clip space coordinates as part of graphics pipeline.

Scale followed by translation would give us this transformation:

Above we have assumed our world to have origin at bottom left corner. It is more common however to have our origin be at top left. So the transformation becomes:

(0,0)
(w,0)

Scale x by $\frac{2}{w}$
Scale y by $-\frac{2}{h}$ →

(0,0)
(2,0)

(0,h)

(0,-2)

translate origin by
(-1, 1)

(1,1)

(-1,-1)

'z' and 'w' coordinates would be set to 1.