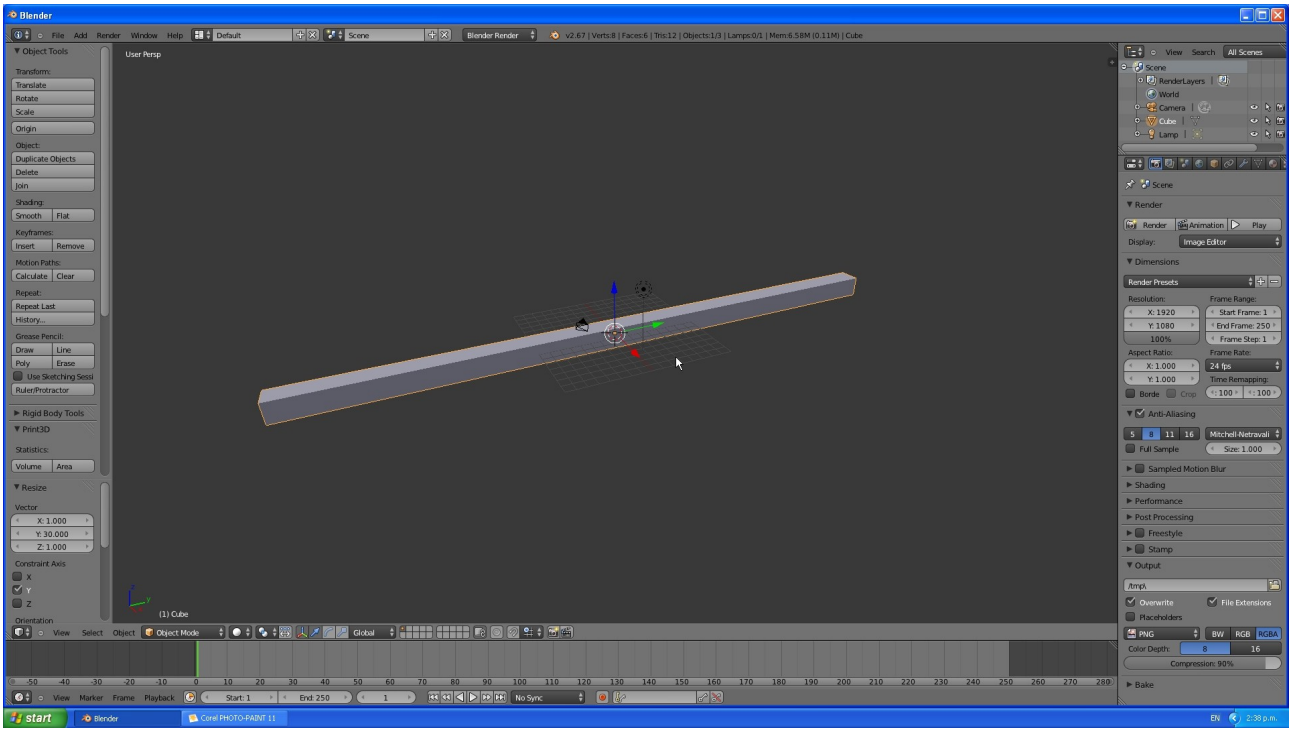
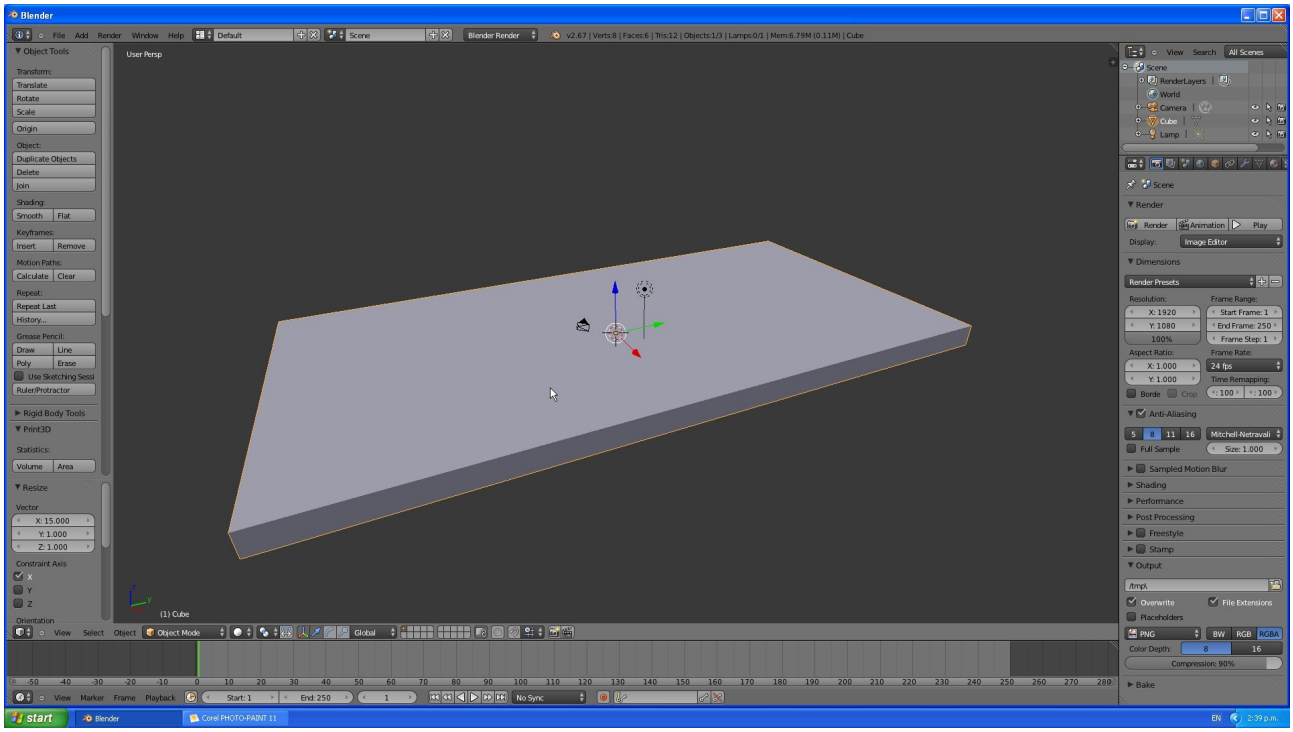
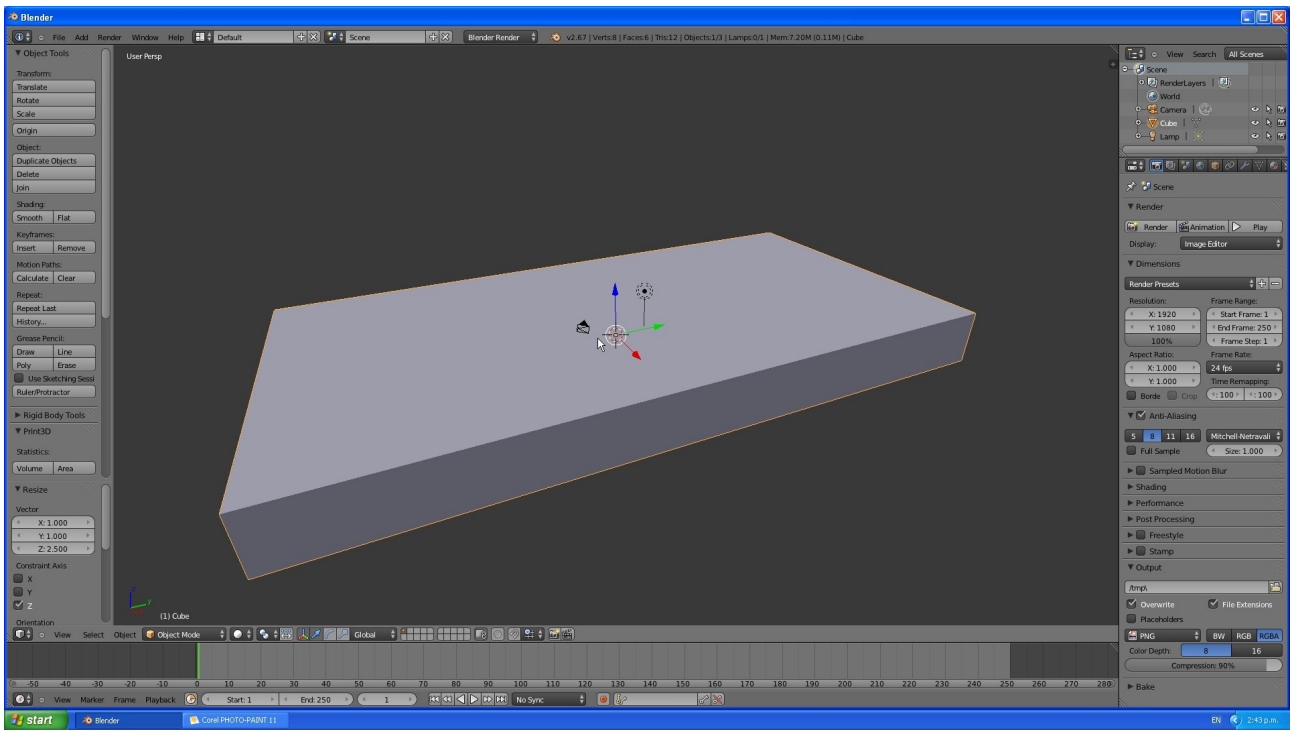
Creating the Bracket in Blender



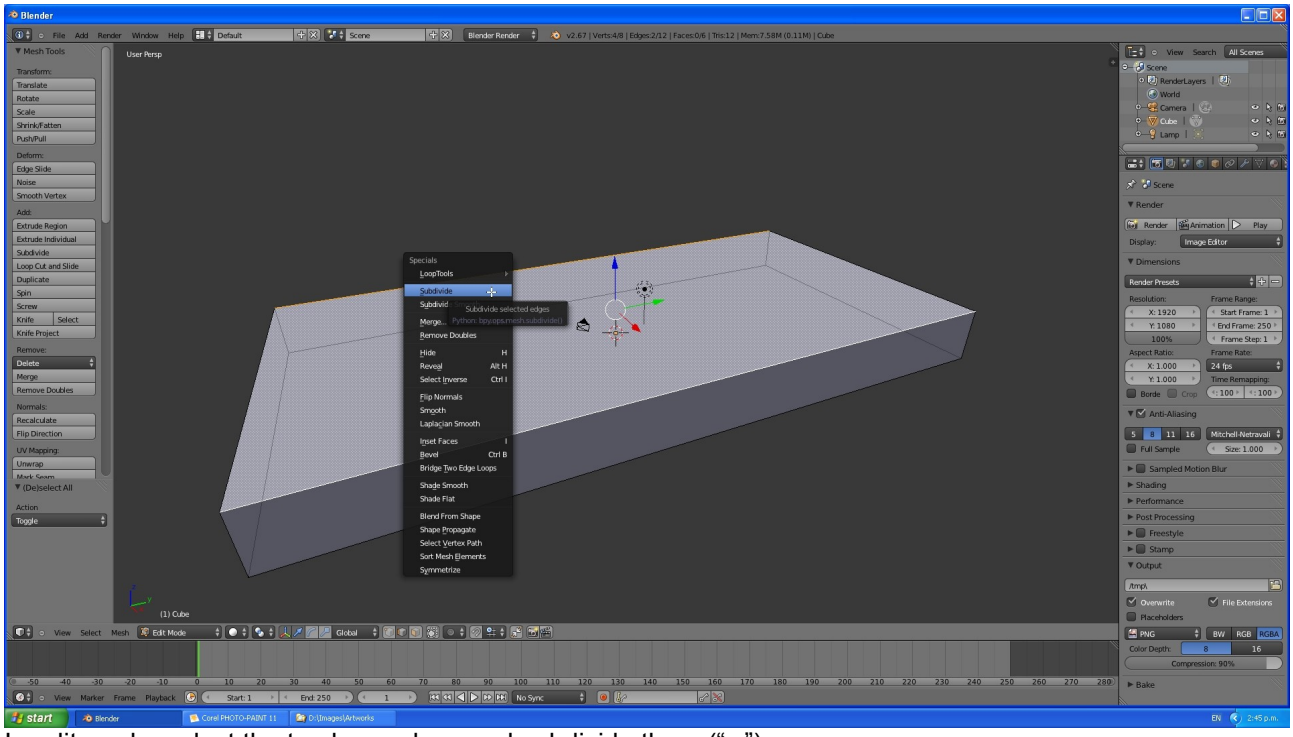
Scale the default 2mm x 2mm x 2mm cube out to the bracket length. (“sy30 enter”)



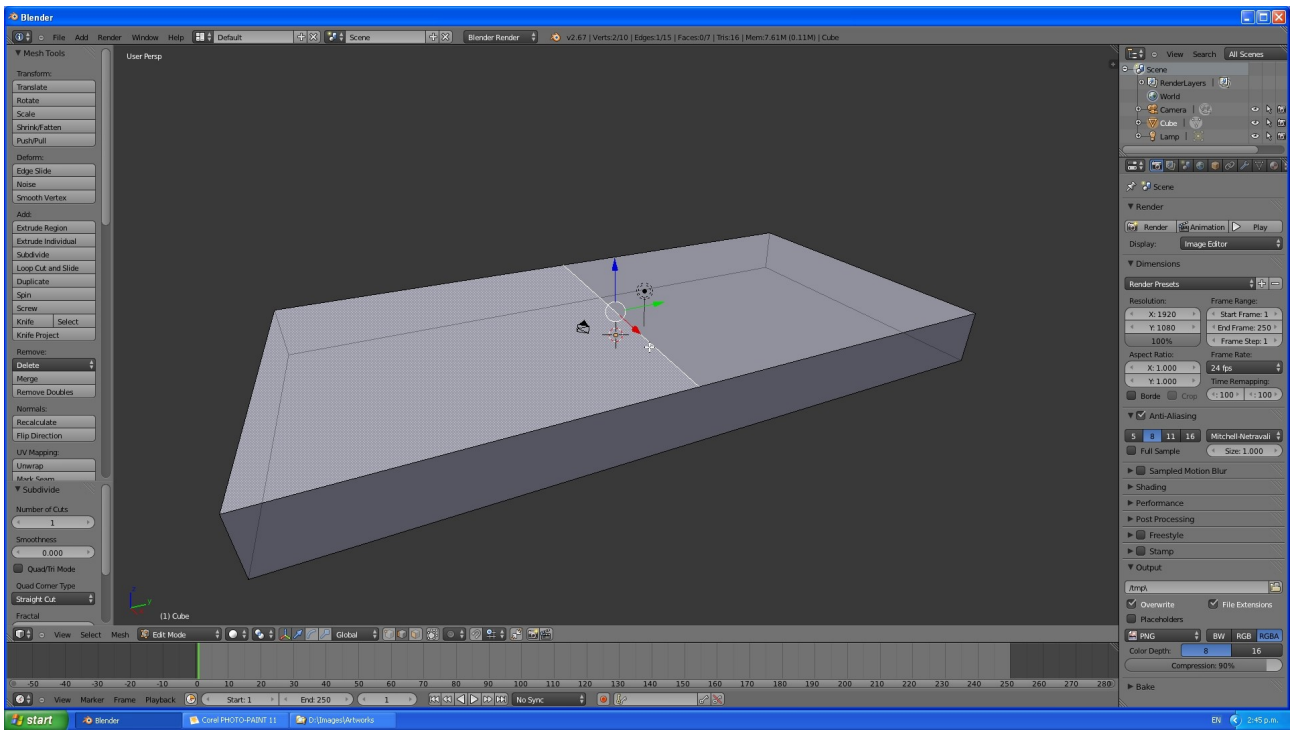
Scale the width to the width of the bracket. (“sx15 enter”)



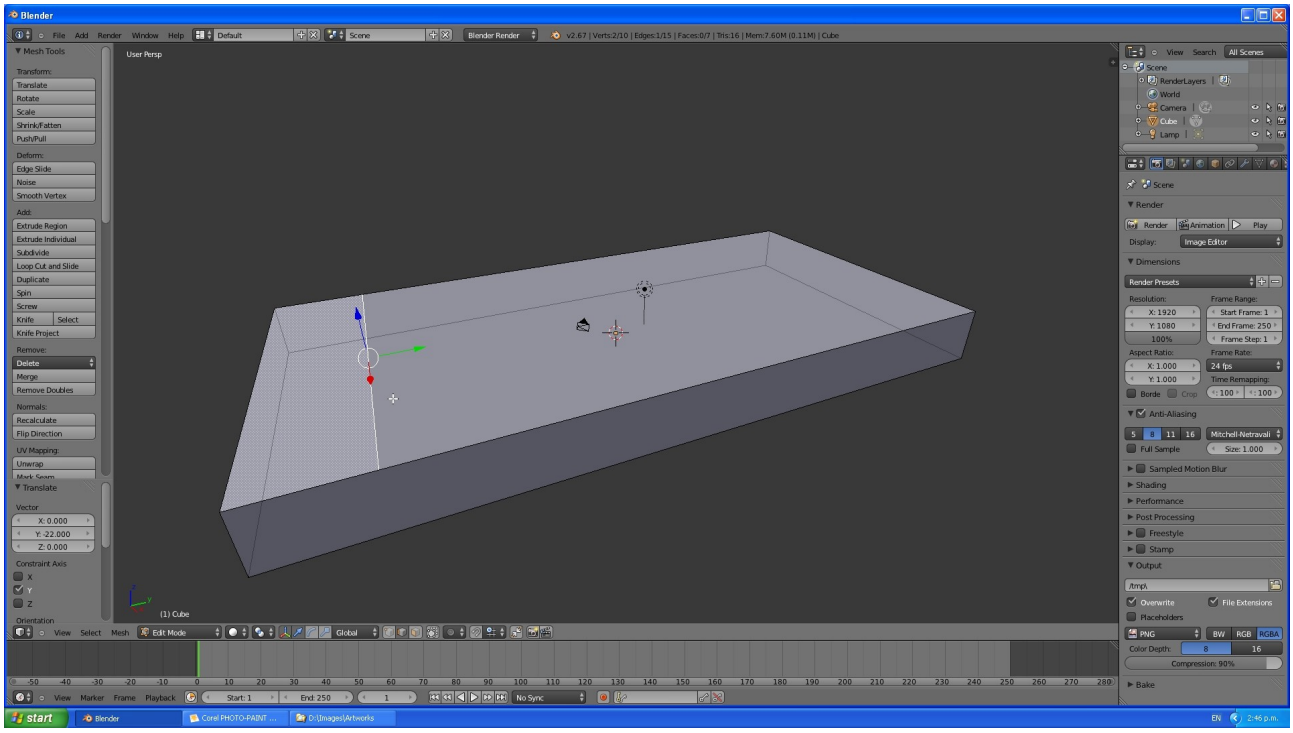
Scale the depth to the depth of the bracket back panel. (“sz2.5 enter”)



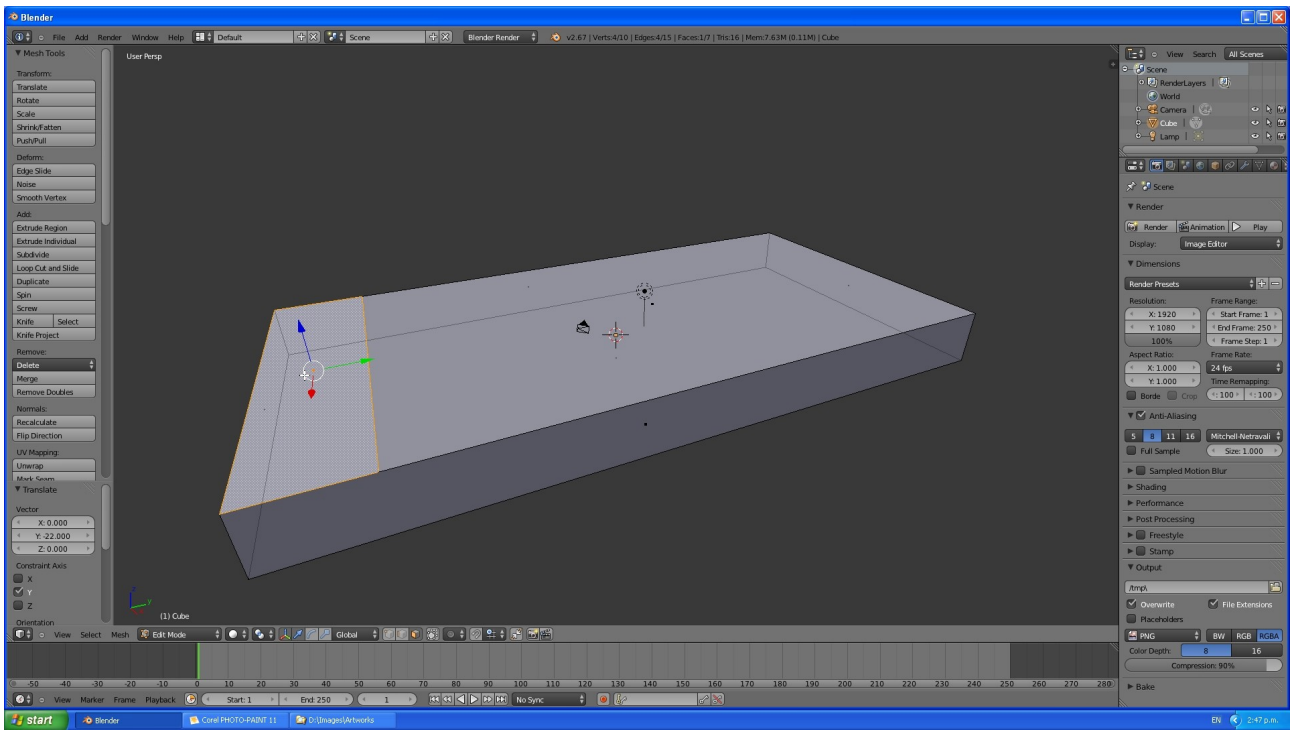
In edit mode; select the top long edges and subdivide them (“w”).



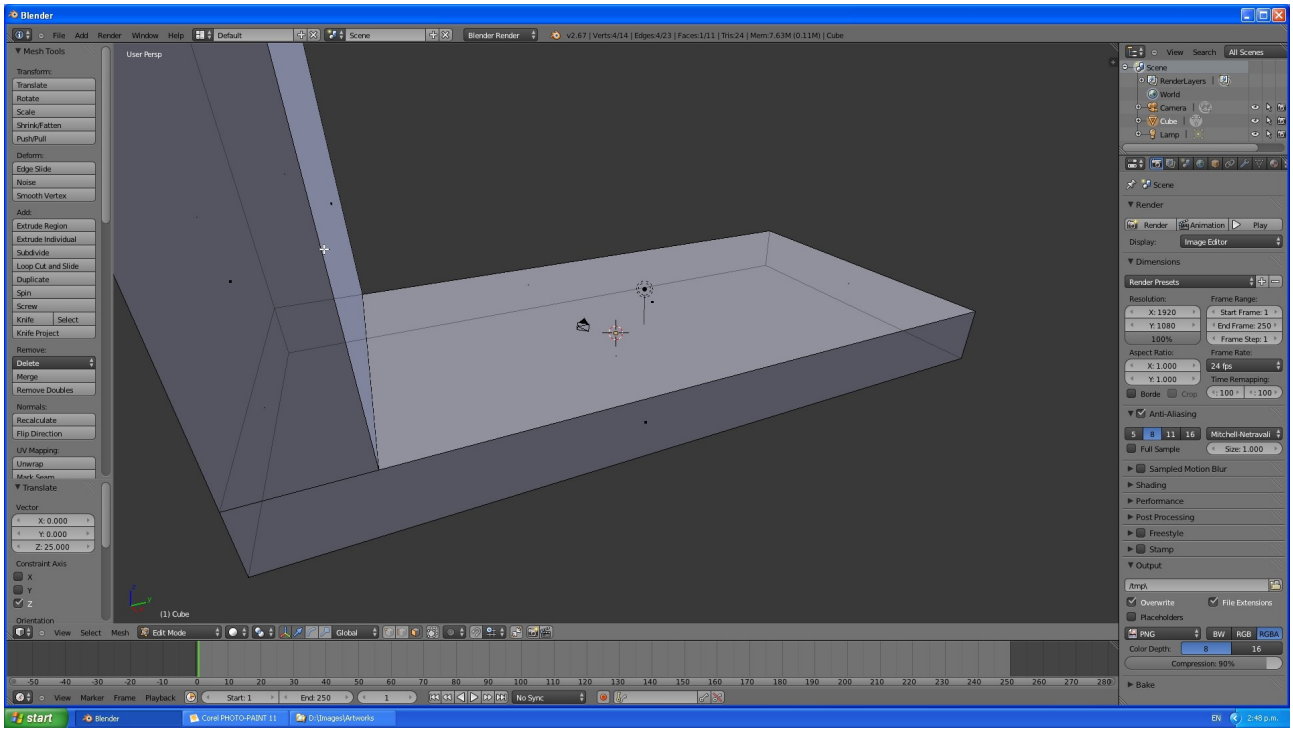
Select the new edge



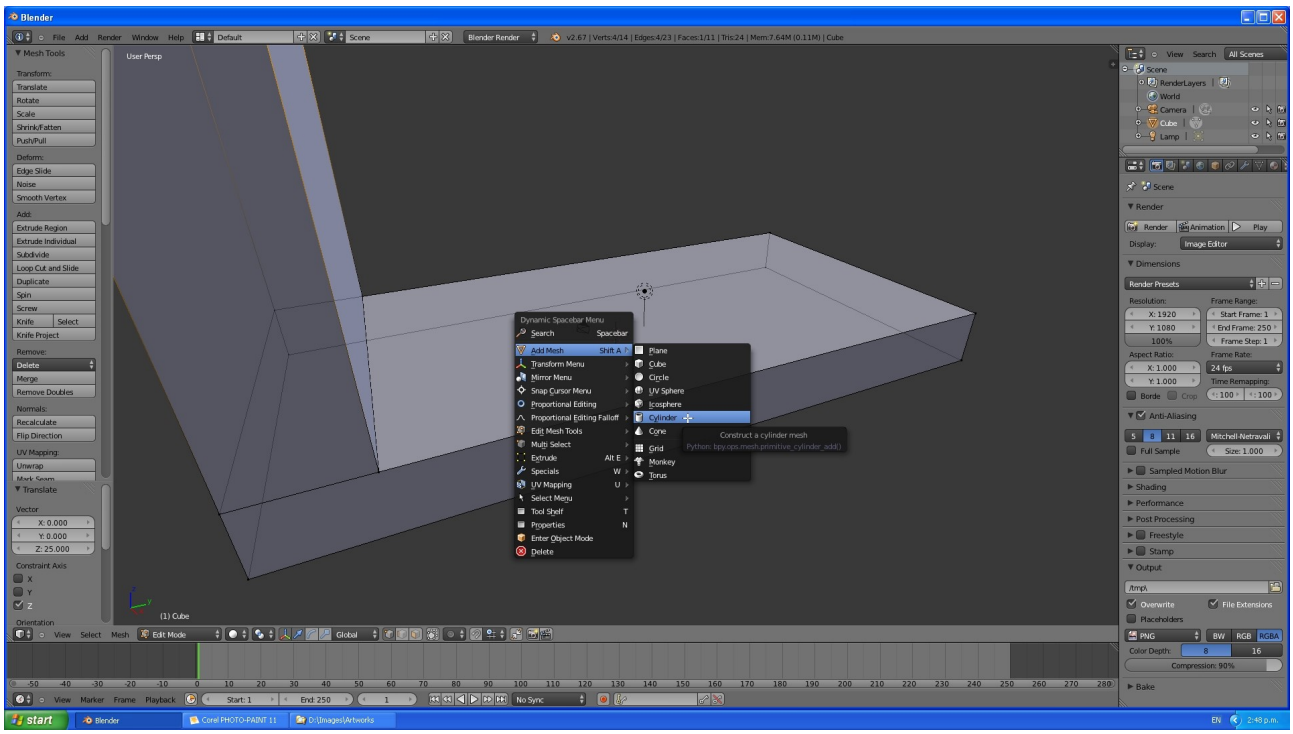
Drag it down to where it is 8 units from the end. In this case we know the edge occurred in the middle and so we can key in the exact measurements to move it 30mm – 8mm = 22mm in the negative y-direction. (“gy-22 enter”)



Go to the face select mode and select the face to extrude.

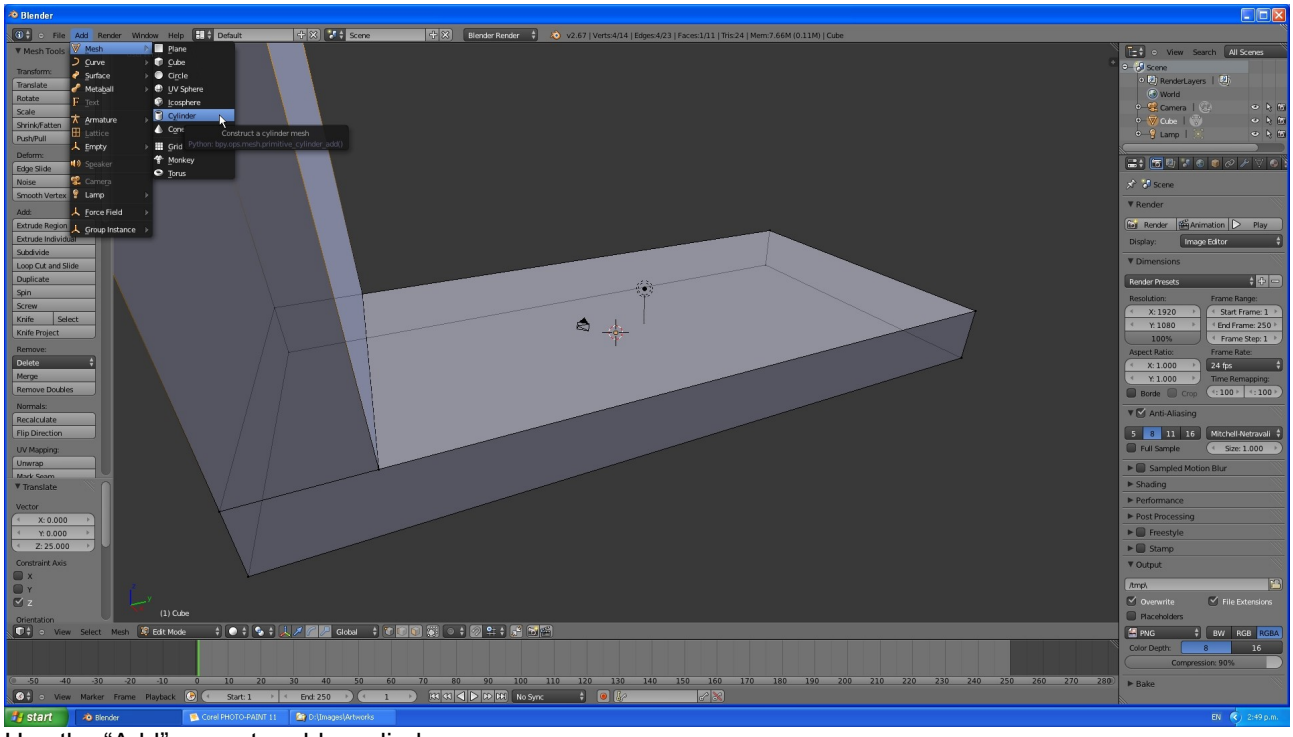


Extrude the face upward 25mm. (“e25 enter”)

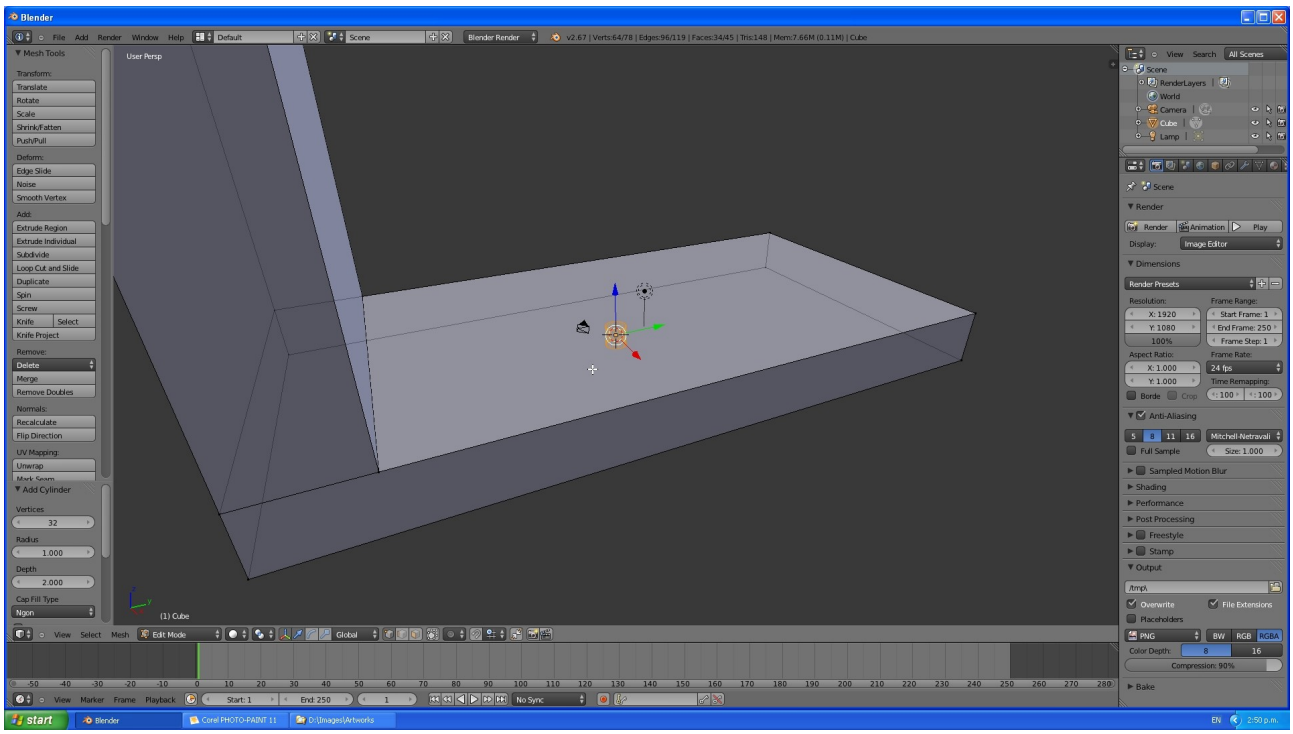


With the space-bar menu add a cylinder.

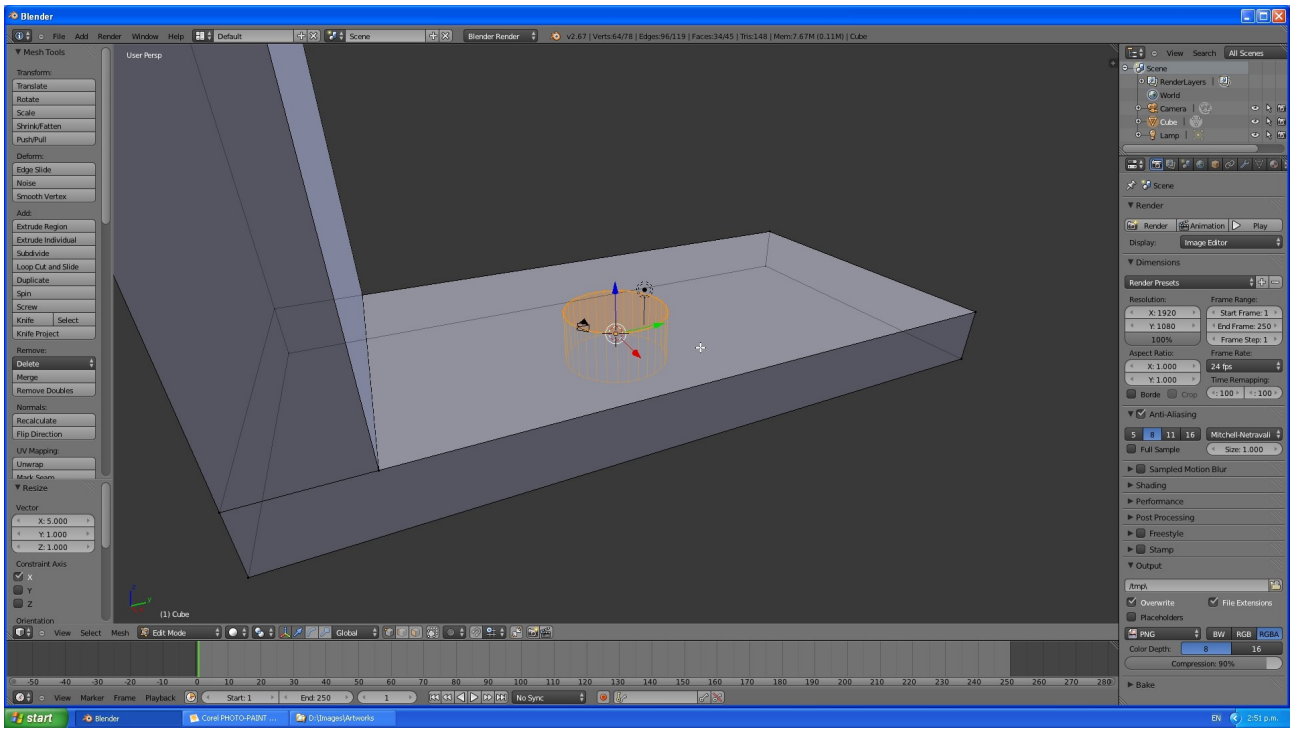
Or

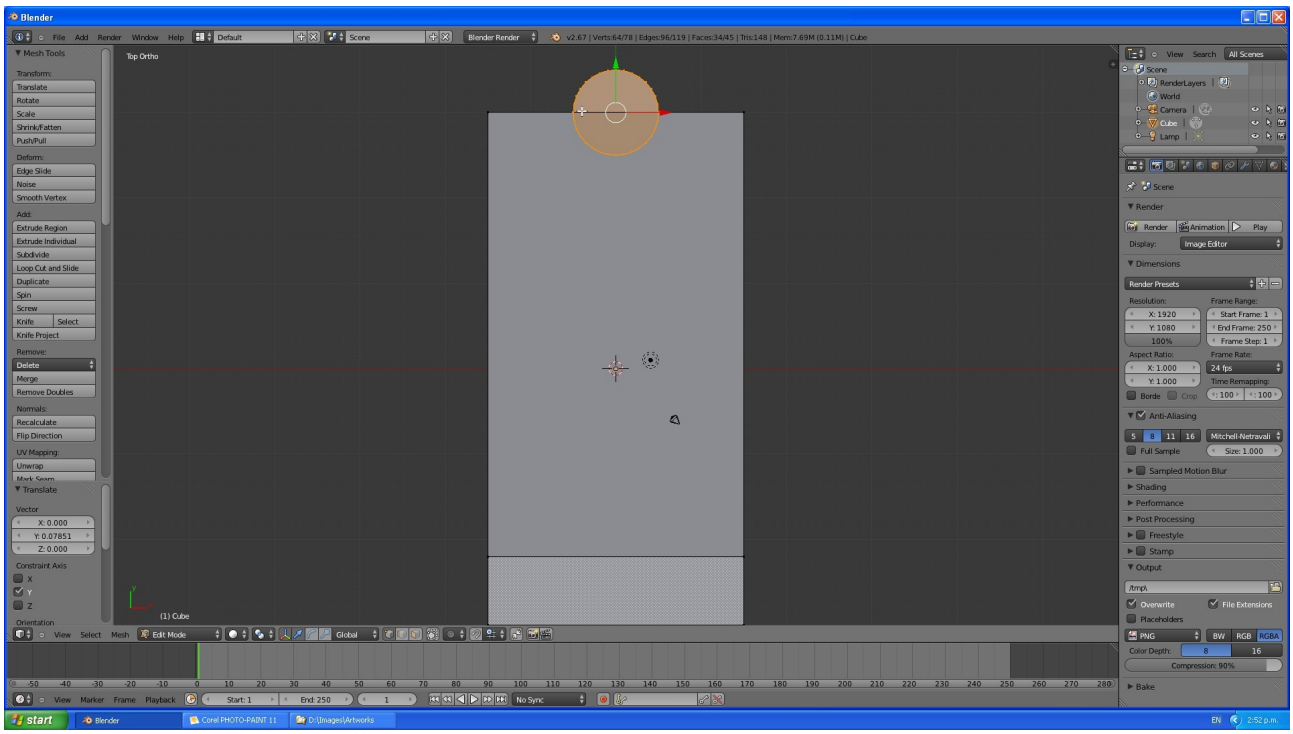


Use the “Add” menu to add a cylinder.

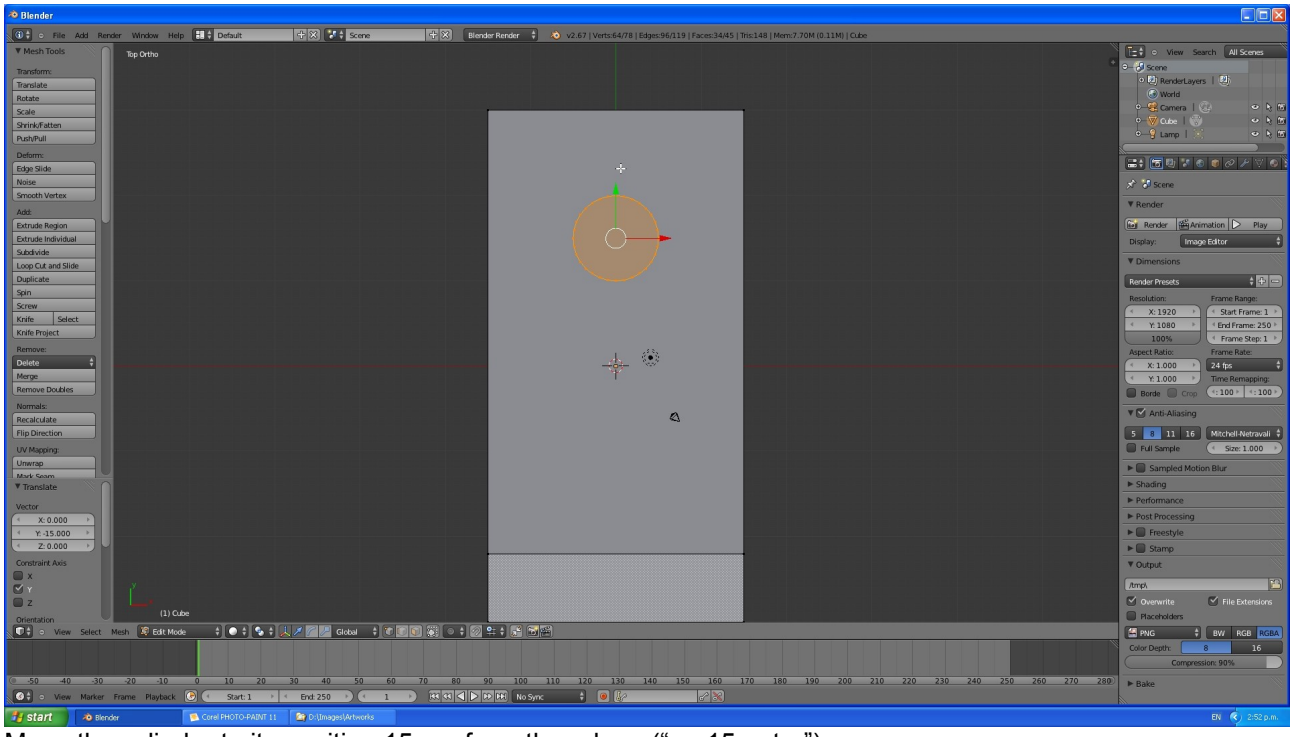


Default cylinder size radius of 1mm and depth of 2mm. You can access the dimensions in bar on the left. To get the target dimensions of 5mm deep and 5mm in radius. Alternatively you could just scale the cylinder to the right size (“sz2.5 enter sx5 enter sy5 enter”)

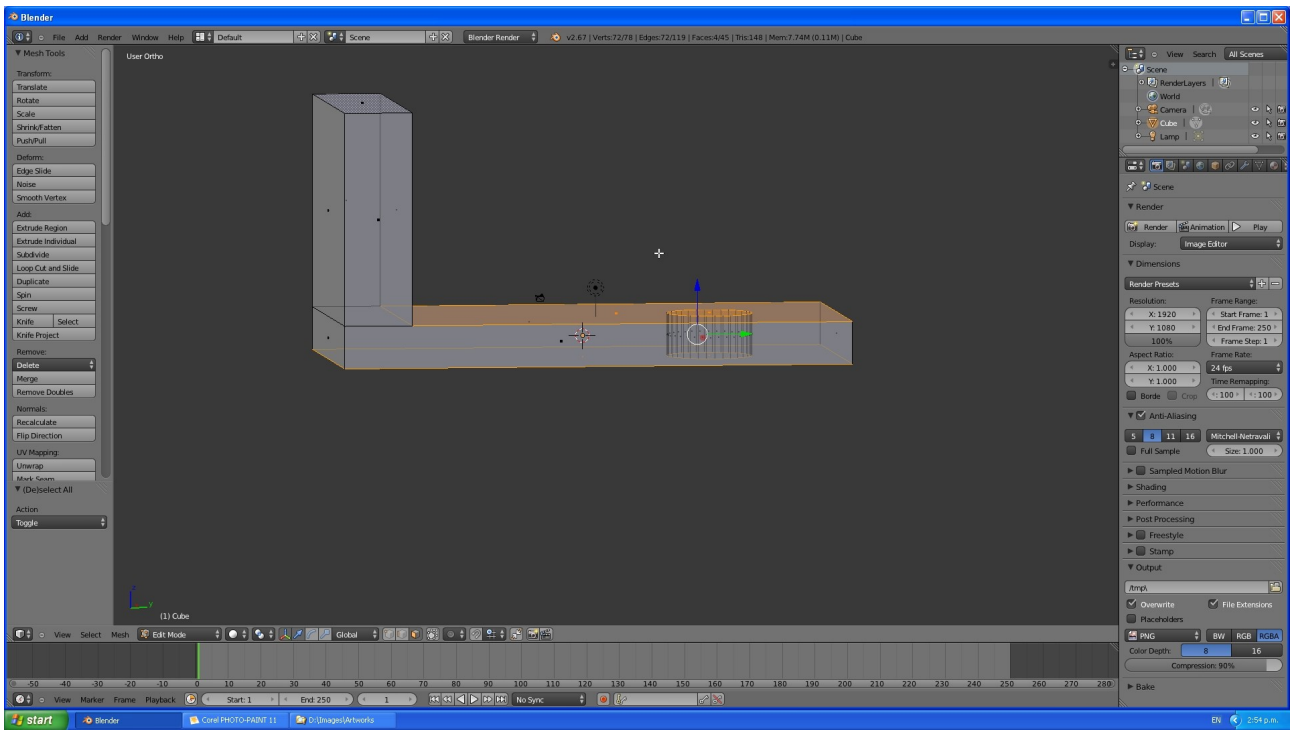




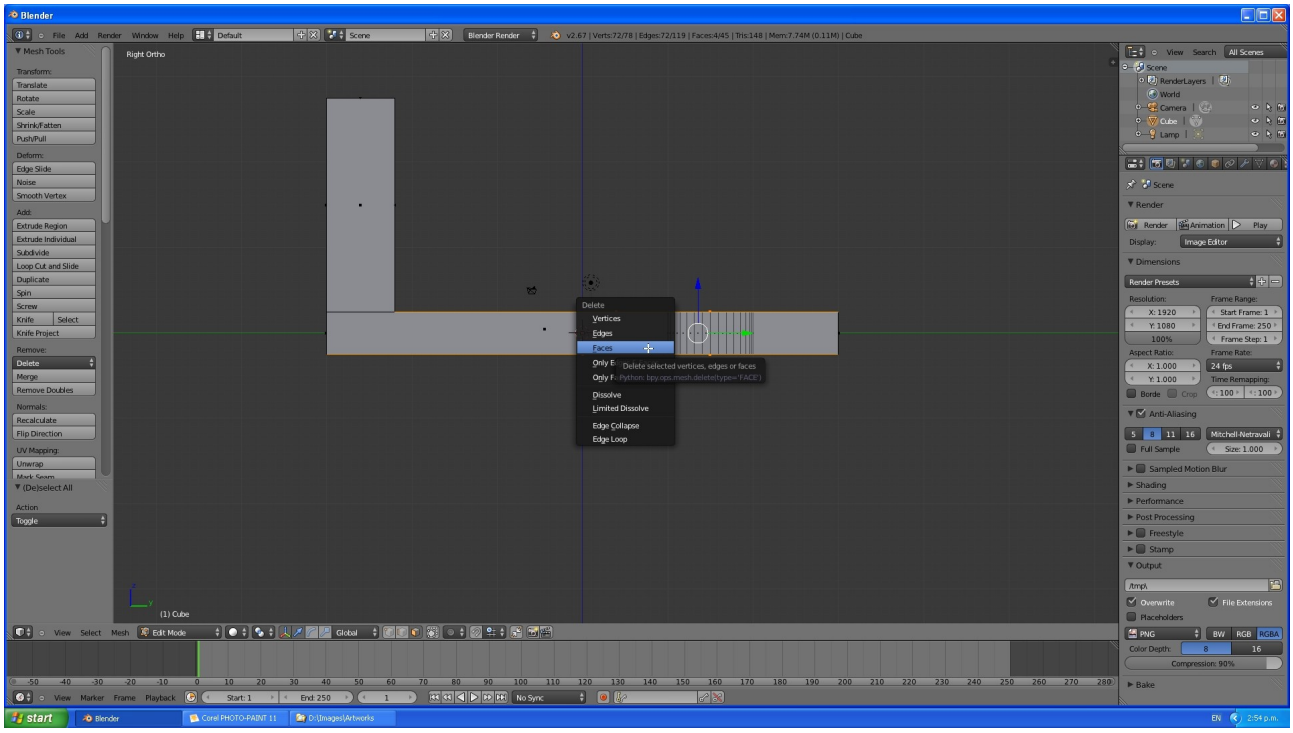
Top view drag the green y-axis arrow to line up centreline of cylinder with top edge.



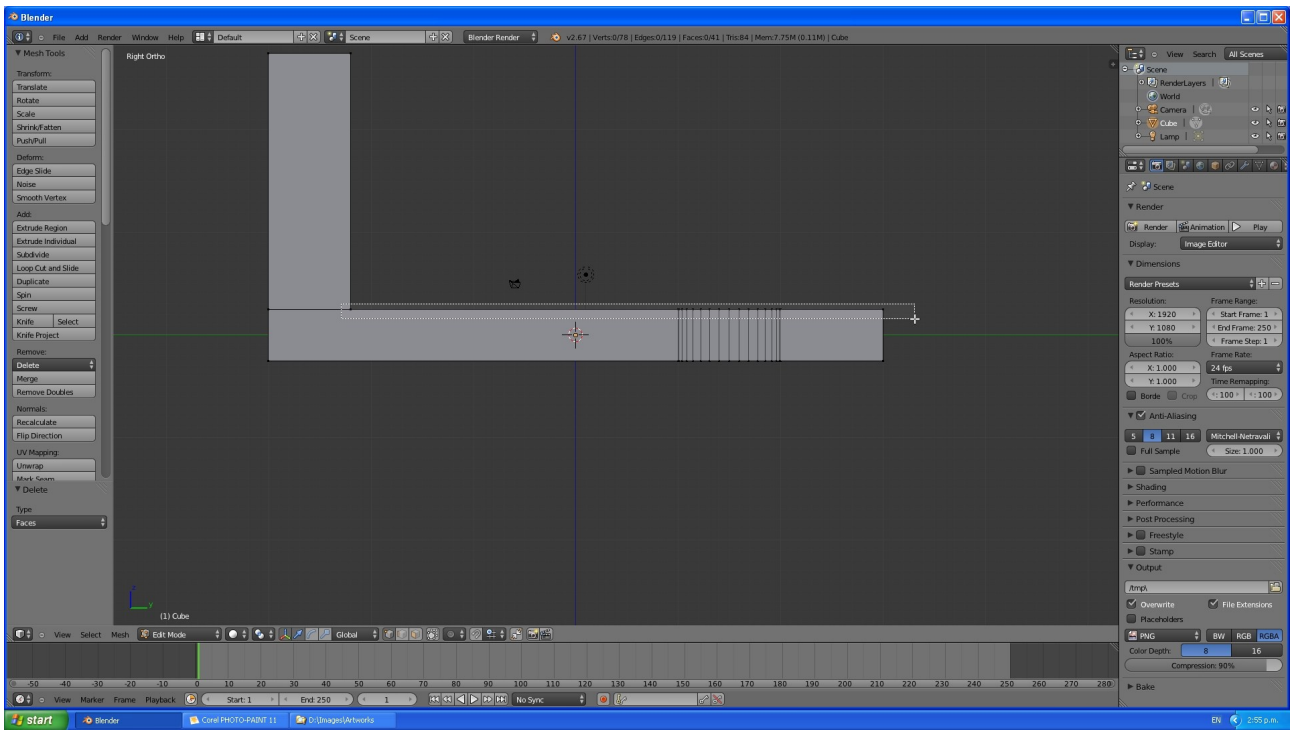
Move the cylinder to its position 15mm from the edge. (“gy-15 enter”)



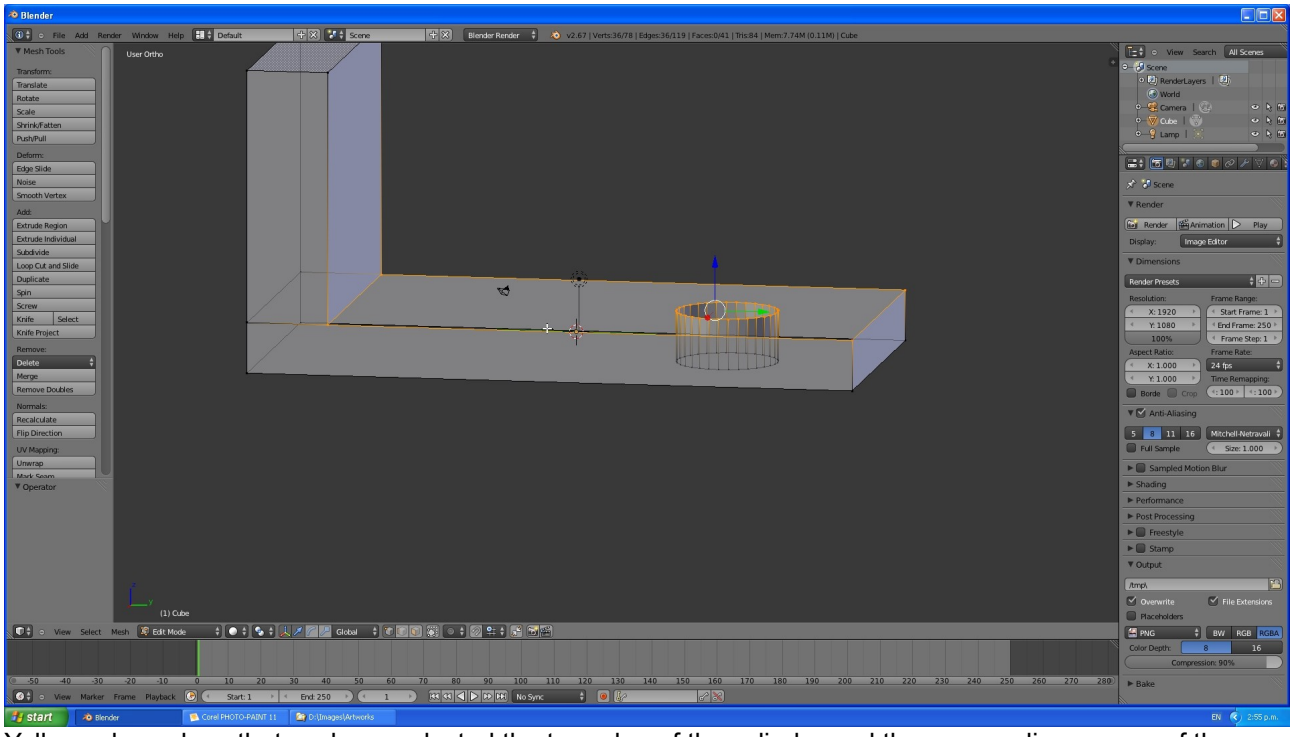
With the face selection tool select the top and bottom faces of the “L” shaped bit and the cylinder.



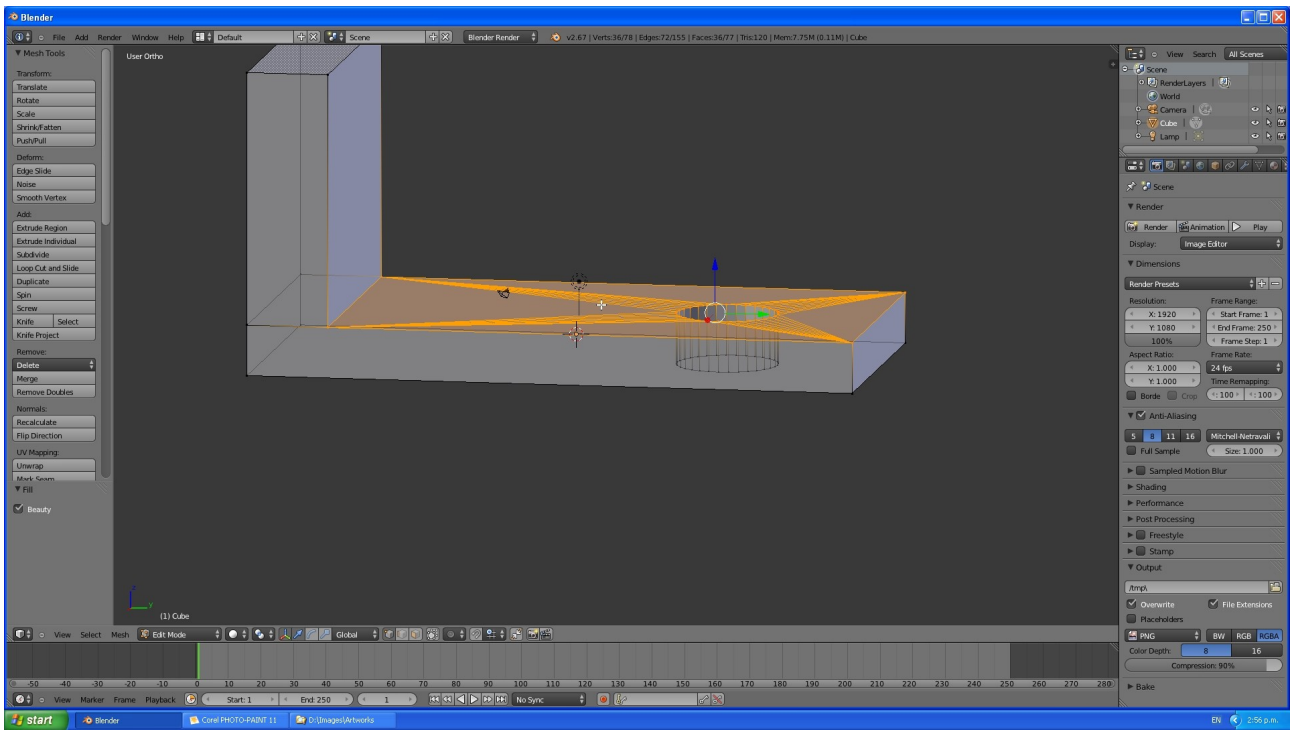
Delete the faces. (“Delete button”)



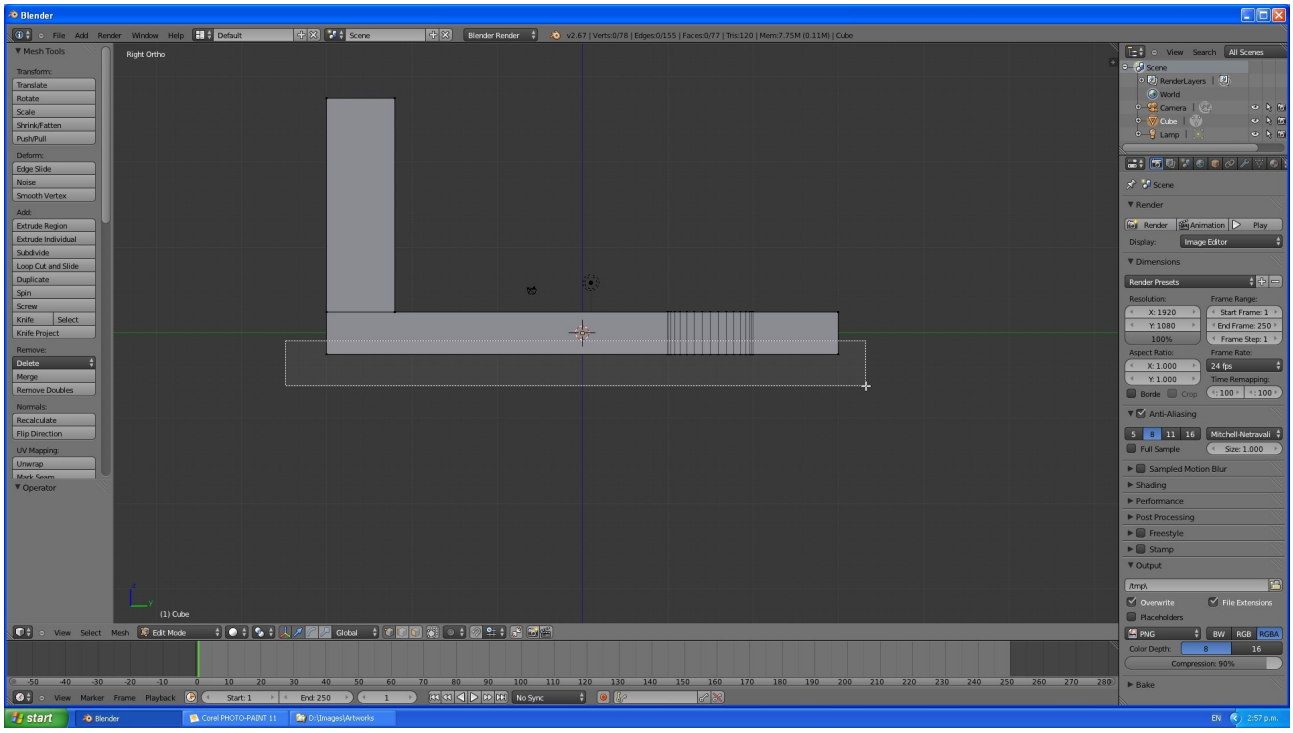
With the vertex selection tool active. Select the vertices around the area we want to fill.



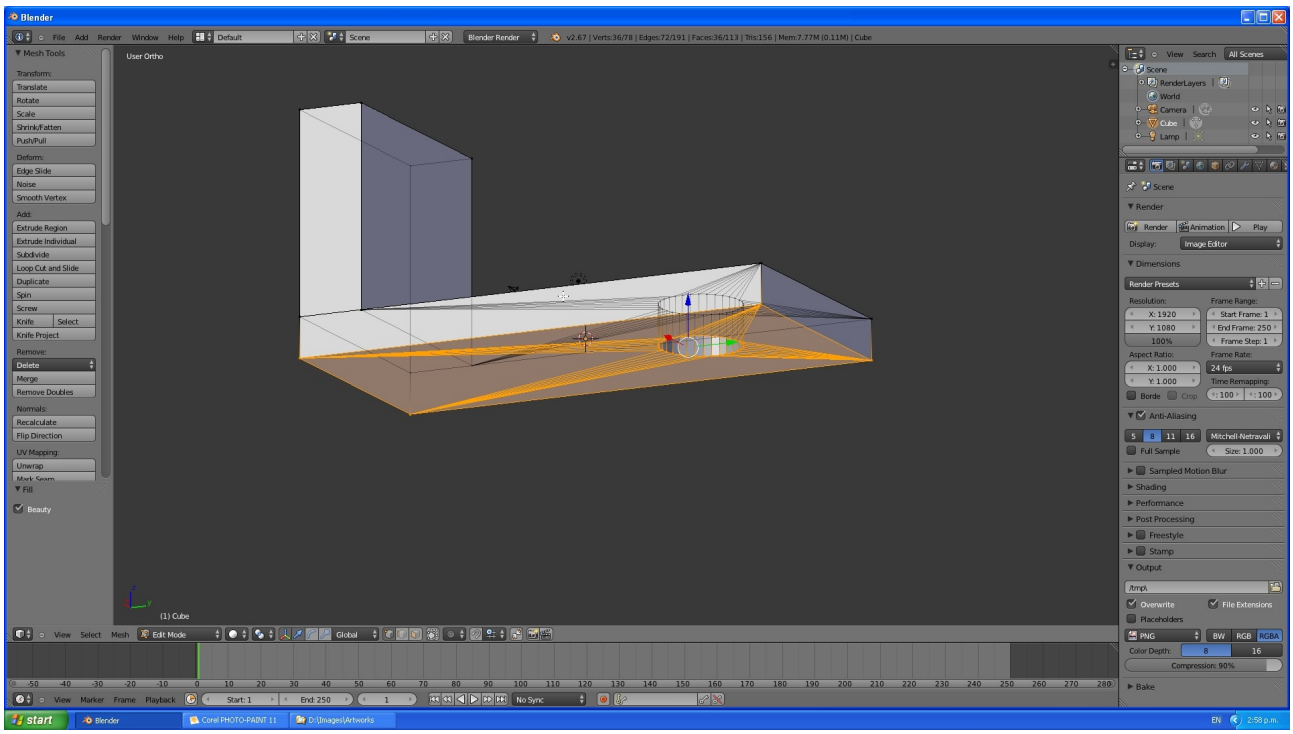
Yellow edges show that we have selected the top edge of the cylinder and the surrounding square of the bracket front face.



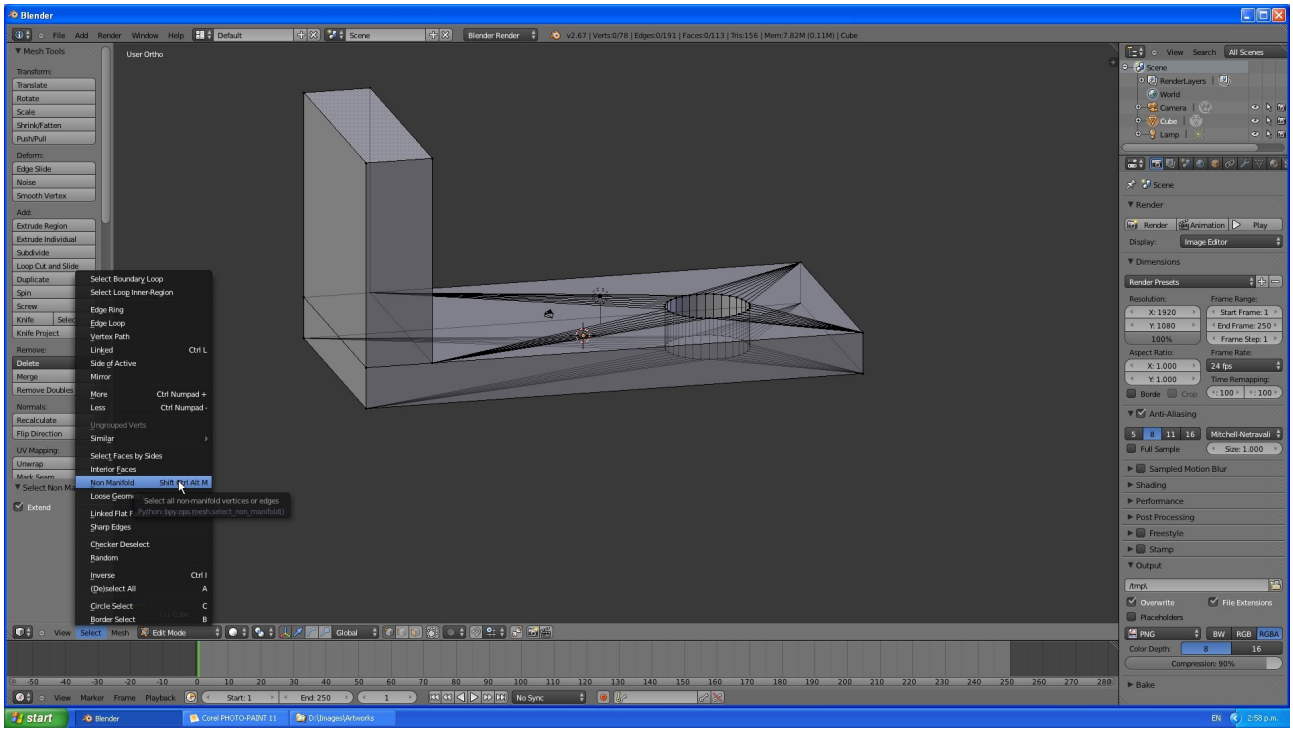
Fill the area by hitting Alt+f.



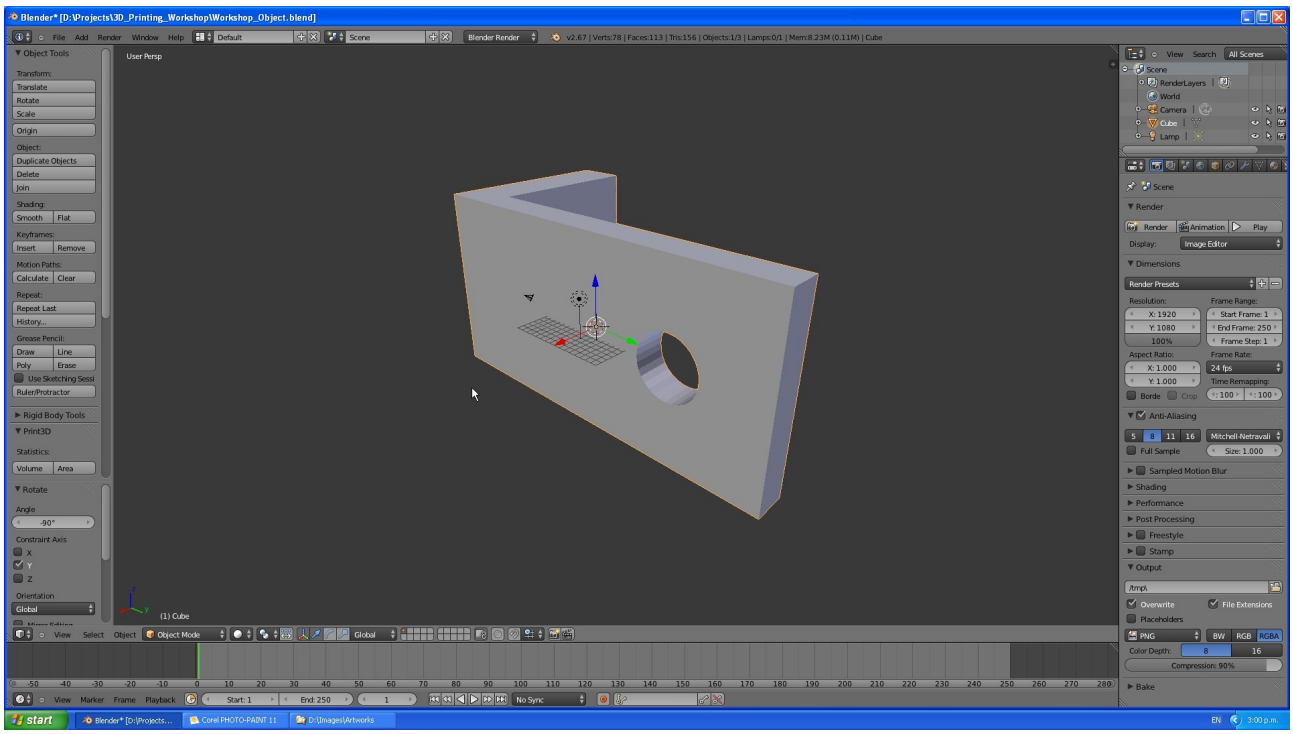
Do the same for the back side.



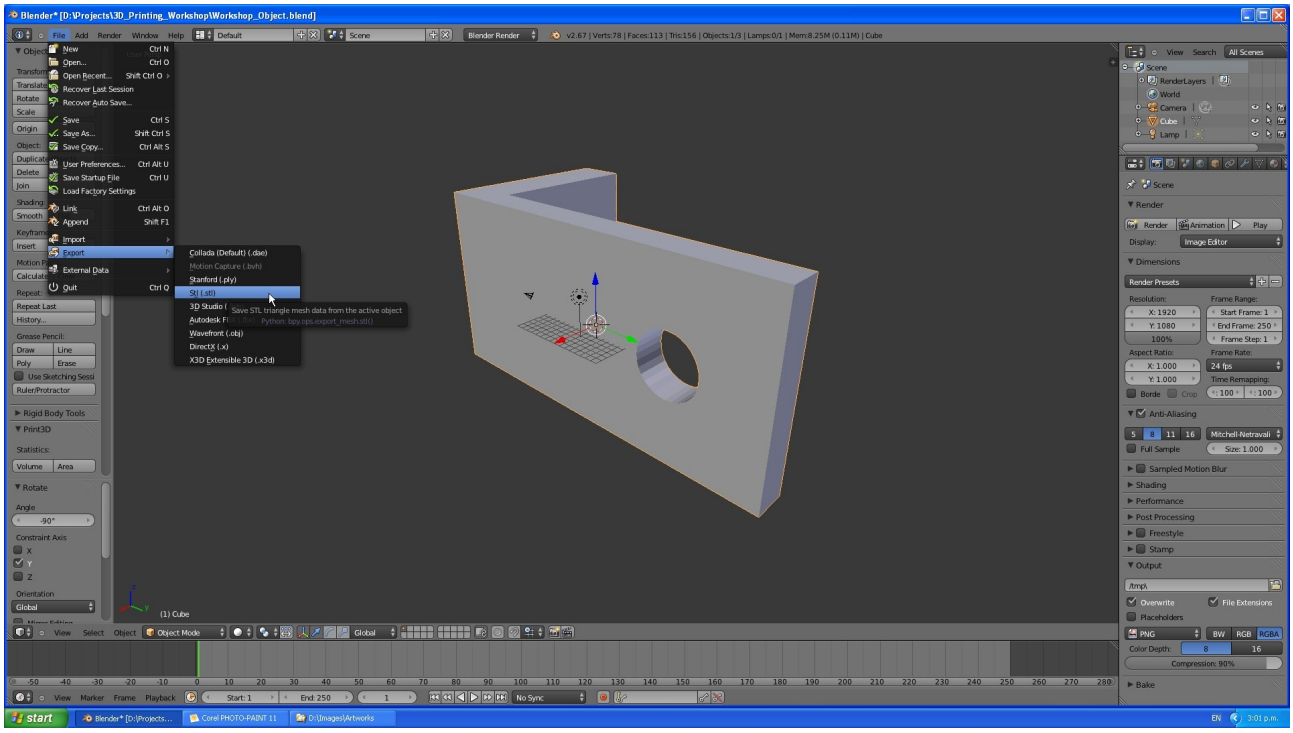
Fill the back panel with Alt+f



Hit “a” to deselect everything. Check the mesh by going to the Select menu and using “Select Non-Manifold”. If everything is OK, nothing will happen. If some yellow vertices or edges appear, these are non-manifold and you will have to have a closer look to see what needs to be fixed. Often it will be a matter of filling a gap, or merging some vertices (Alt+m).



Rotate the object to an orientation that will be printable and maximise the strength.



Export the STL. Save your .blend file too.

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