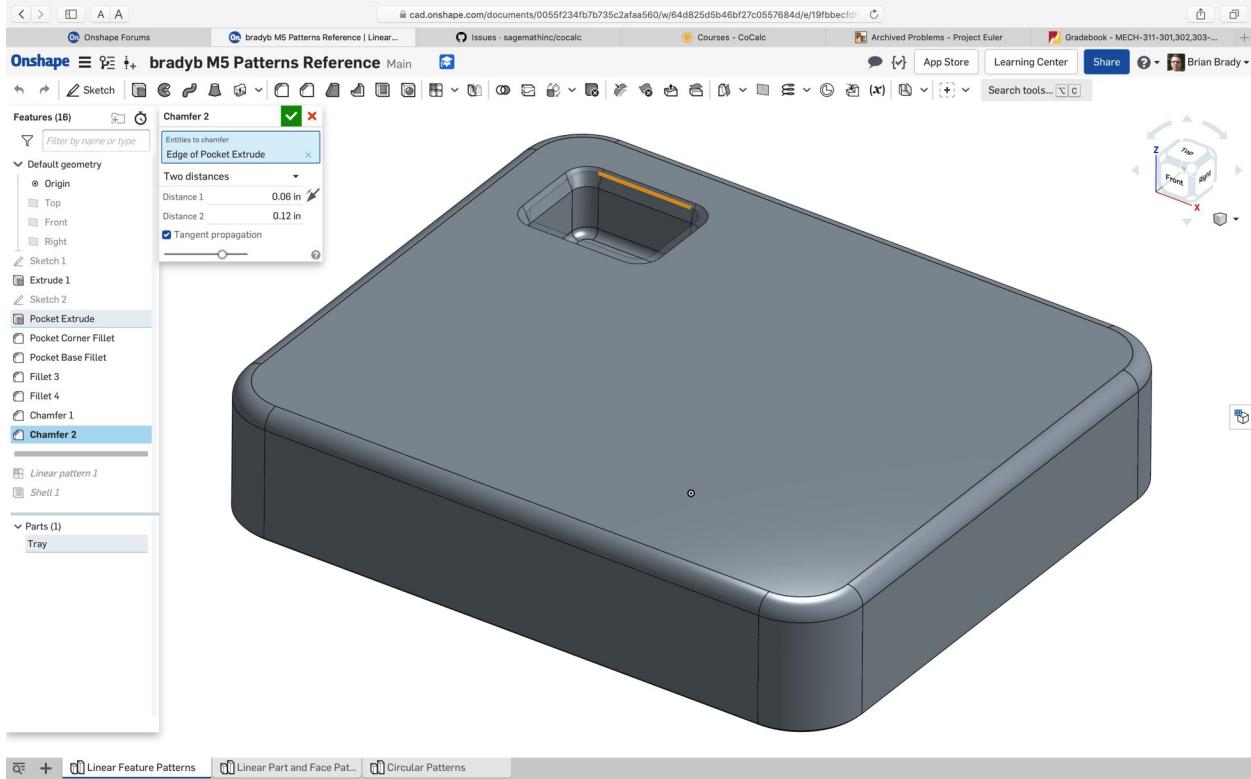
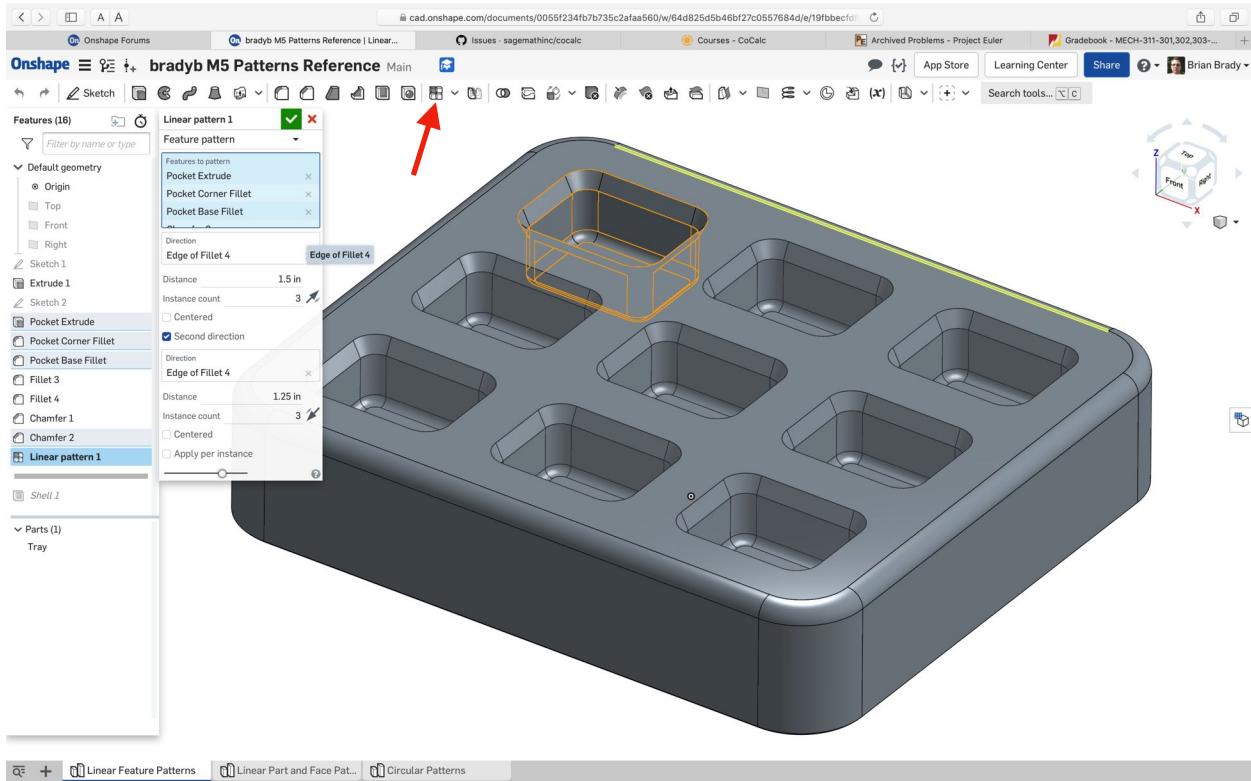


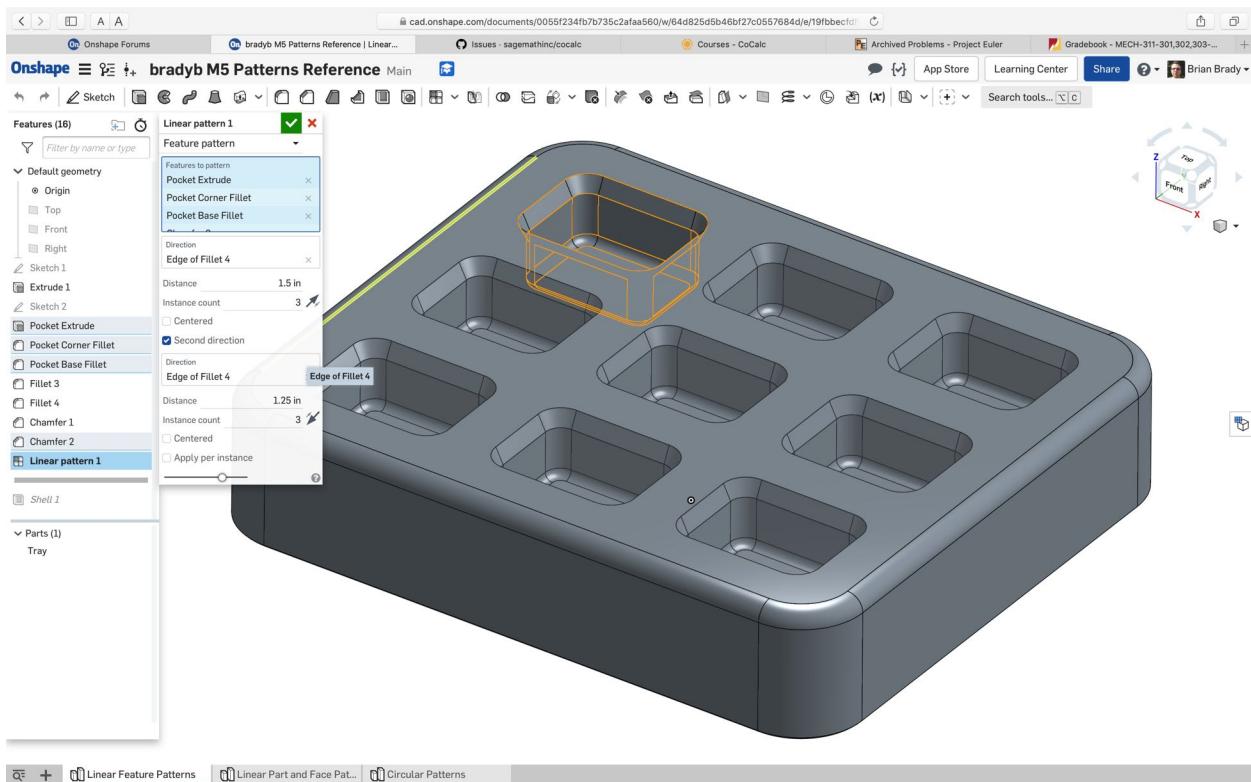
1. Start by selecting the Linear Feature Patterns tab. This part has a single “pocket” extruded into it with fillets on all of the internal edges. We want 9 of these.



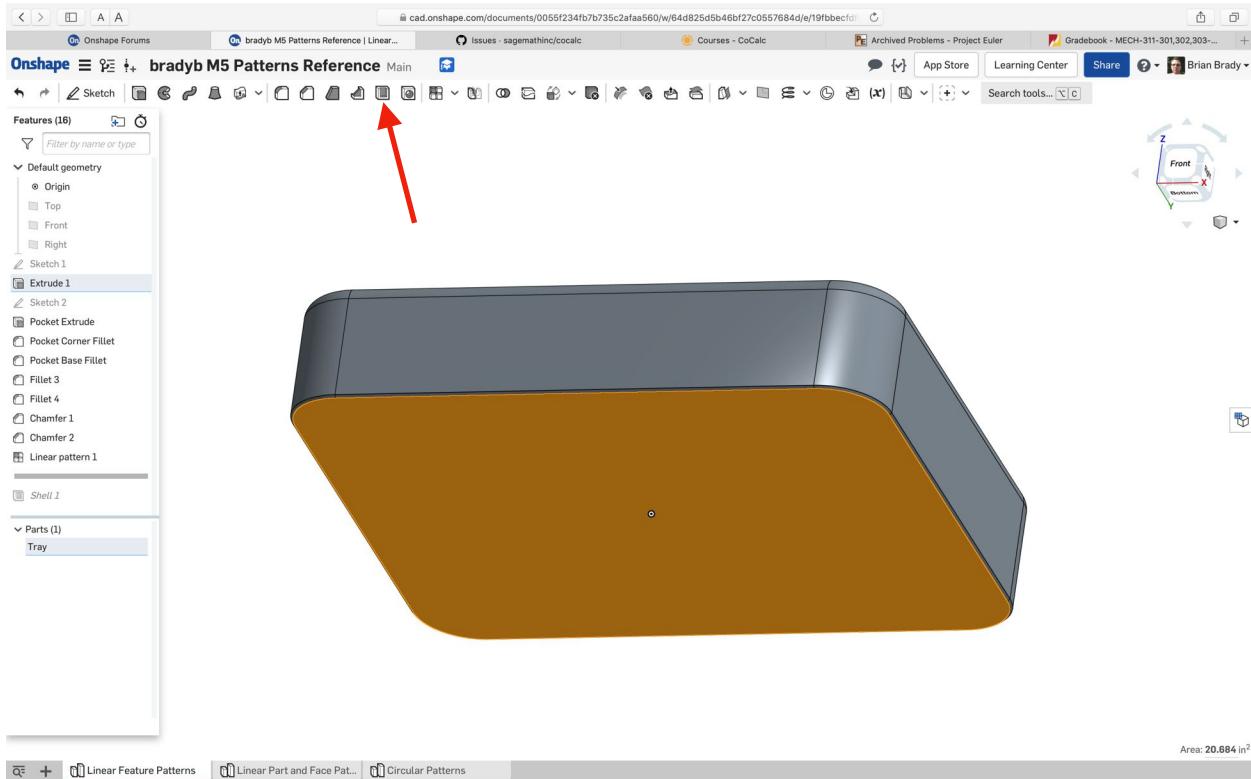
2. Add a “Two distances” chamfer around the top edge of the pocket. Make sure the 0.12 inch dimension is the depth of the chamfer into the pocket. Use the flip arrow if needed.



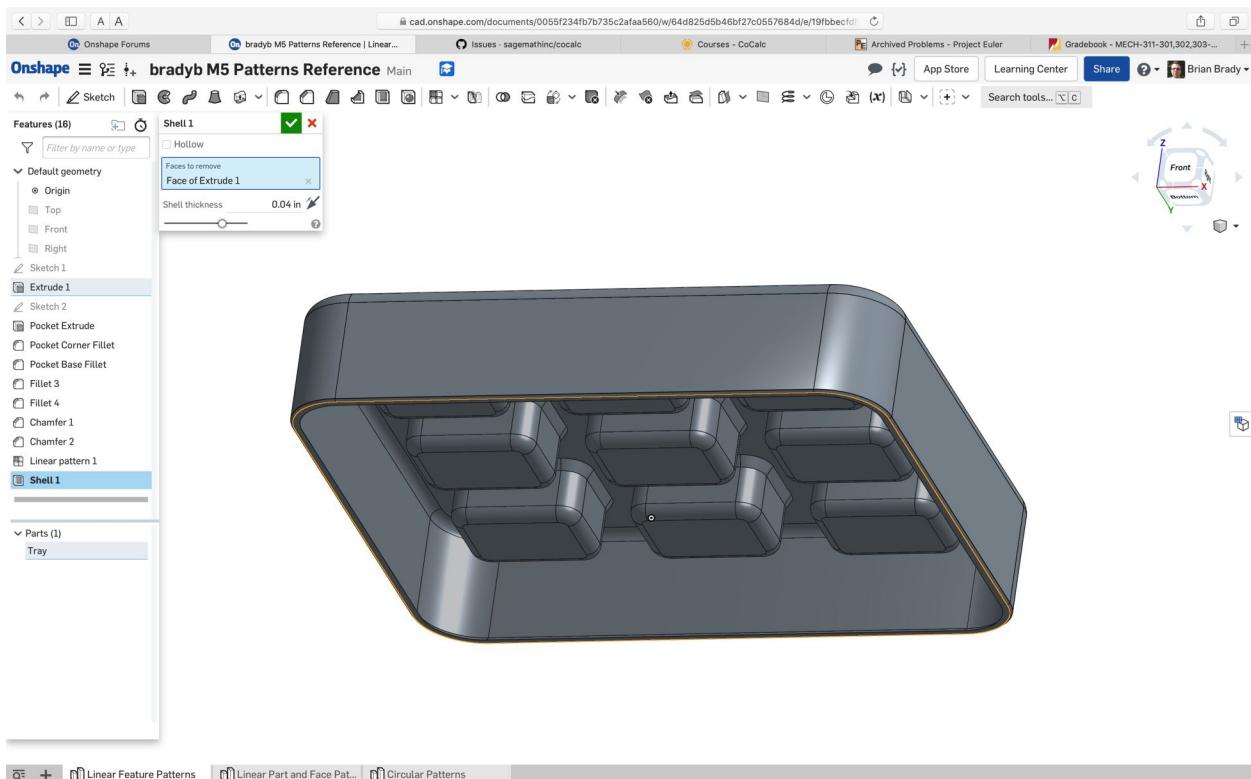
3. Use the Linear Pattern tool set to Feature Pattern mode with the features shown selected. Use the highlighted edge for the first direction with a distance of 1.5 inches and 3 instances.



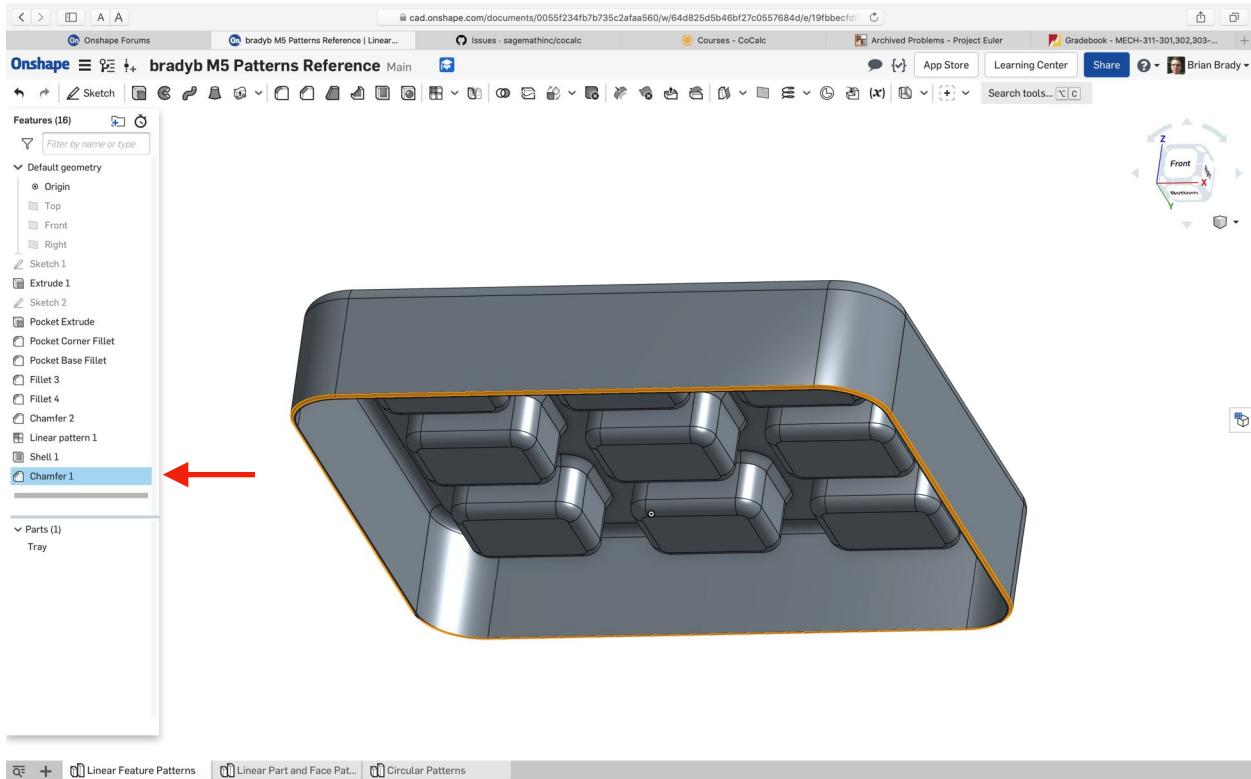
Use the highlighted edge for the second direction with a distance of 1.25 inches and 3 instances. You may have to click on the flip arrow for one or both of the pattern directions.



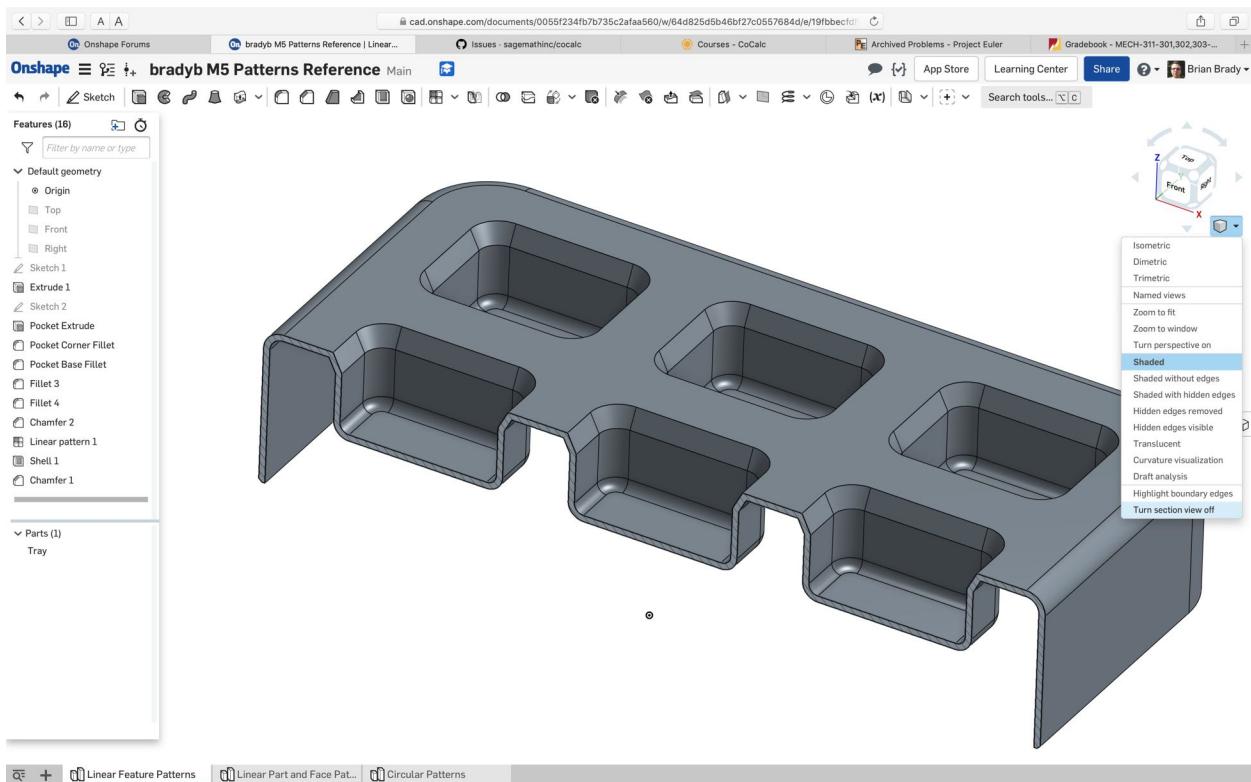
4. Select the bottom of the part and then pick the shell tool...



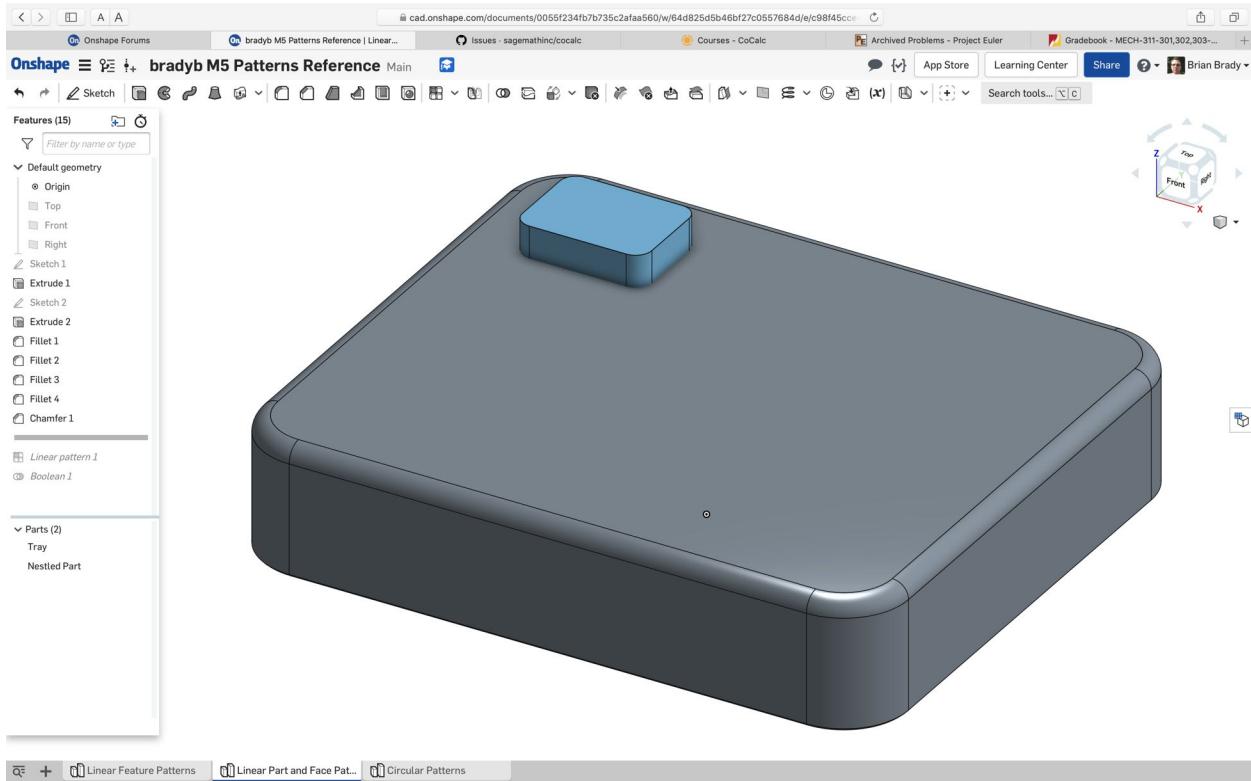
...Shell the part so that the thickness everywhere is 0.04 inches and the bottom is open.



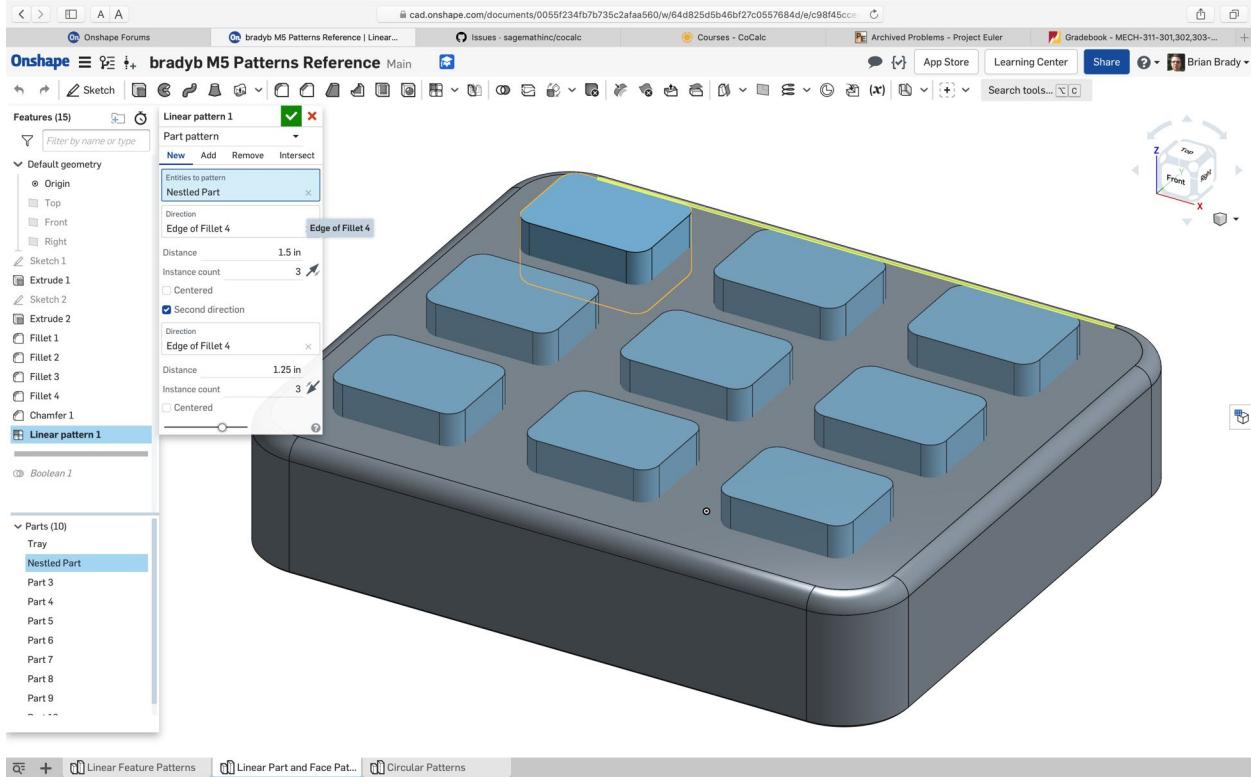
5. Move Chamfer 1 (which is around the bottom edge) to the last position in the feature list.



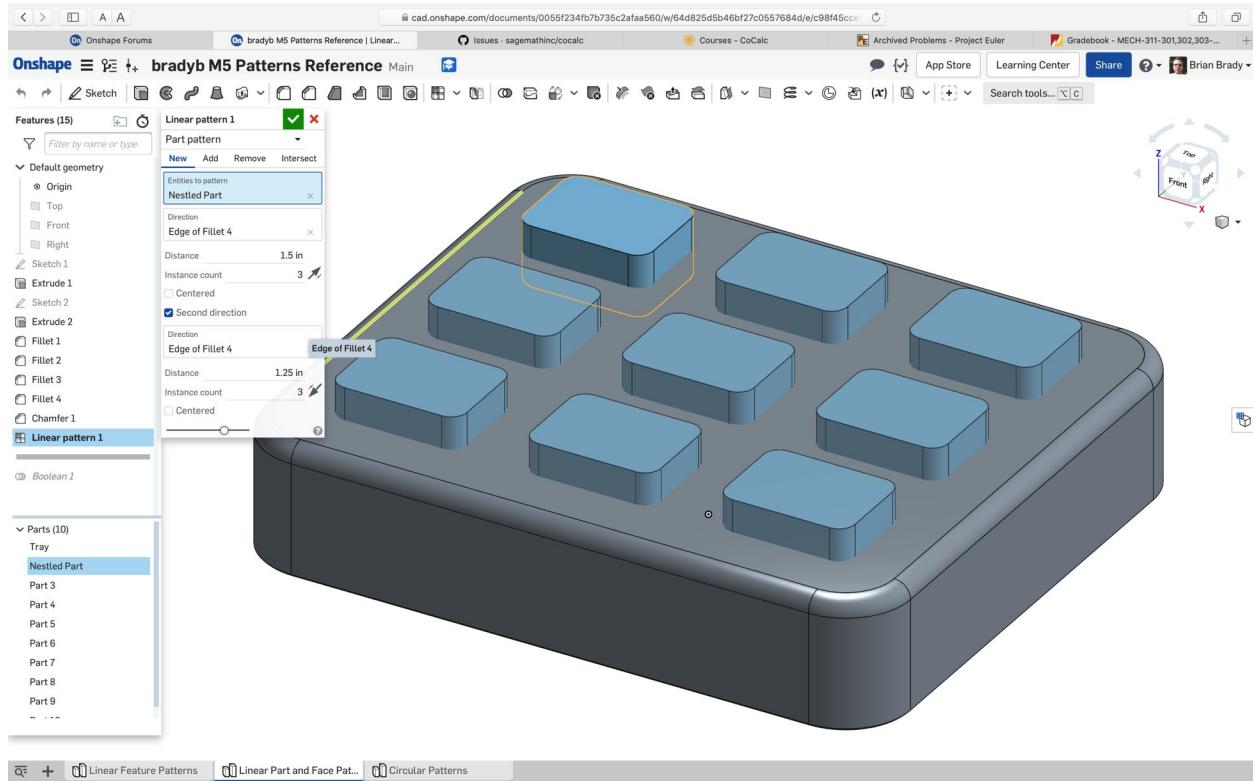
6. Turn on a section view using the Front plane.



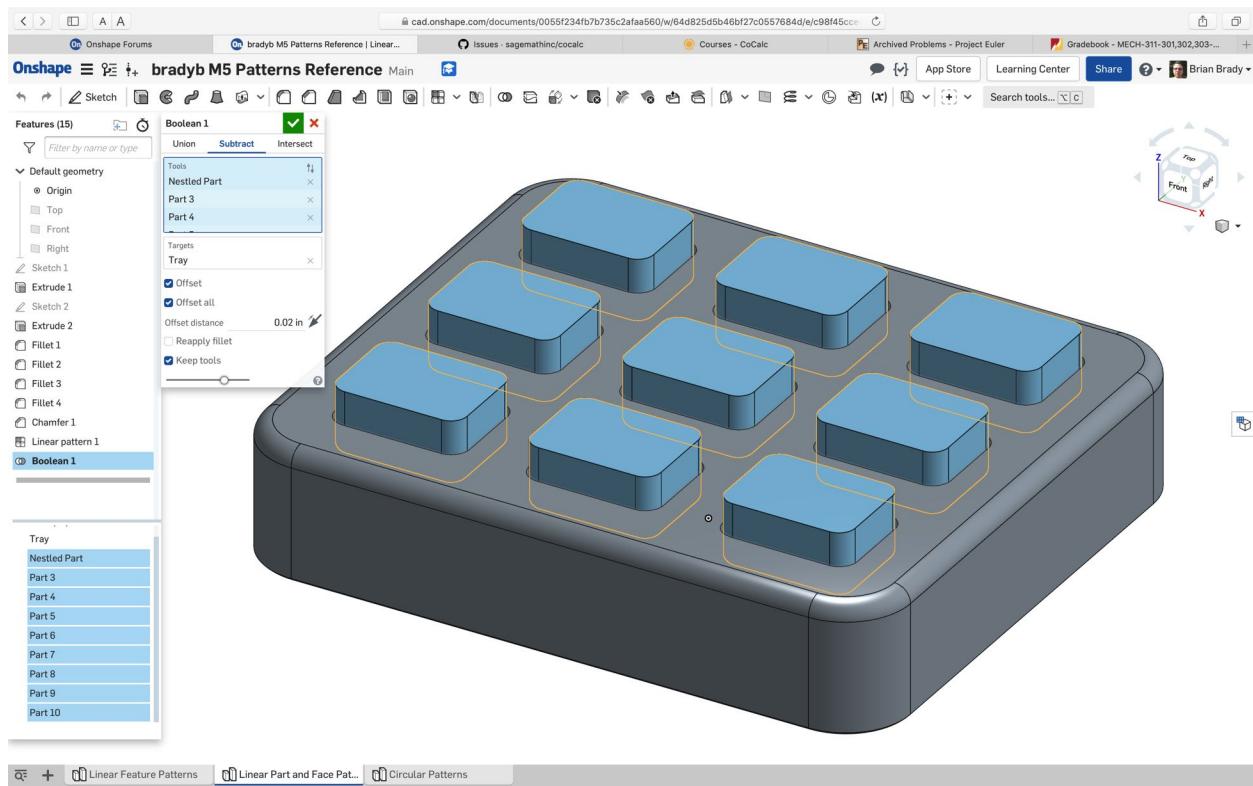
7. Select the Linear Part and Face Patterns tab. This studio has a Tray and a Nested Part. We want 9 of the parts setting in pockets in the tray when finished.



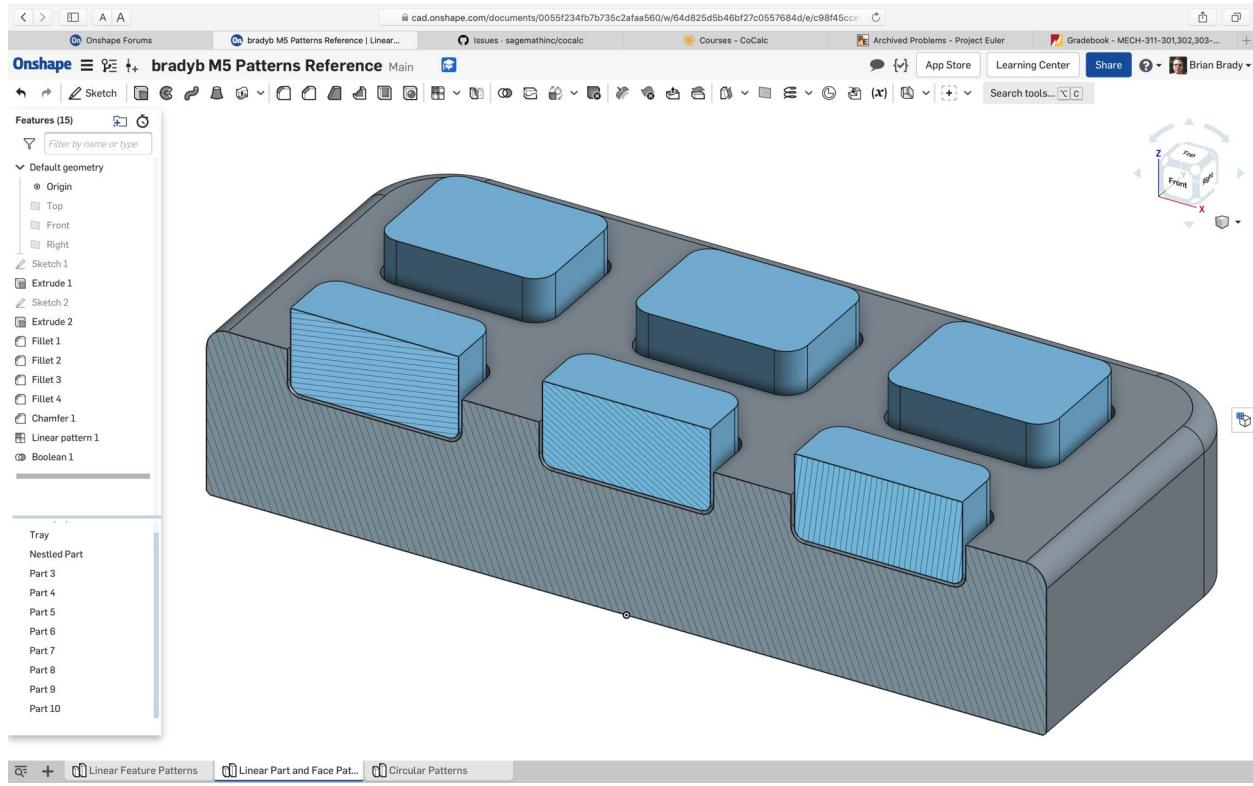
8. Use the Linear Pattern tool set to Part Pattern mode with the Nested Part selected. Use the highlighted edge for the first direction with a 1.5 inch distance and 3 instances.



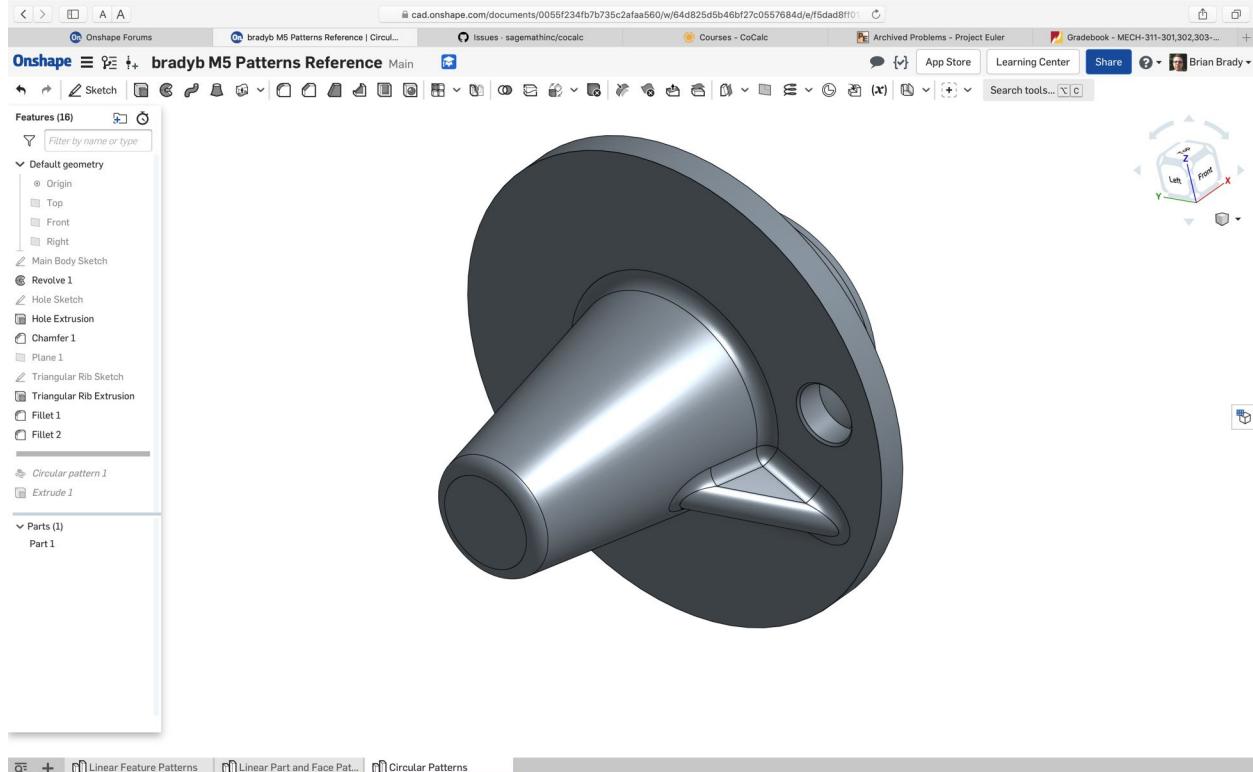
Set the second distance to 1.25 inches with an instance count of 3. Use the highlighted edge for the direction. You may need to flip one or both of the patterns to make it work.



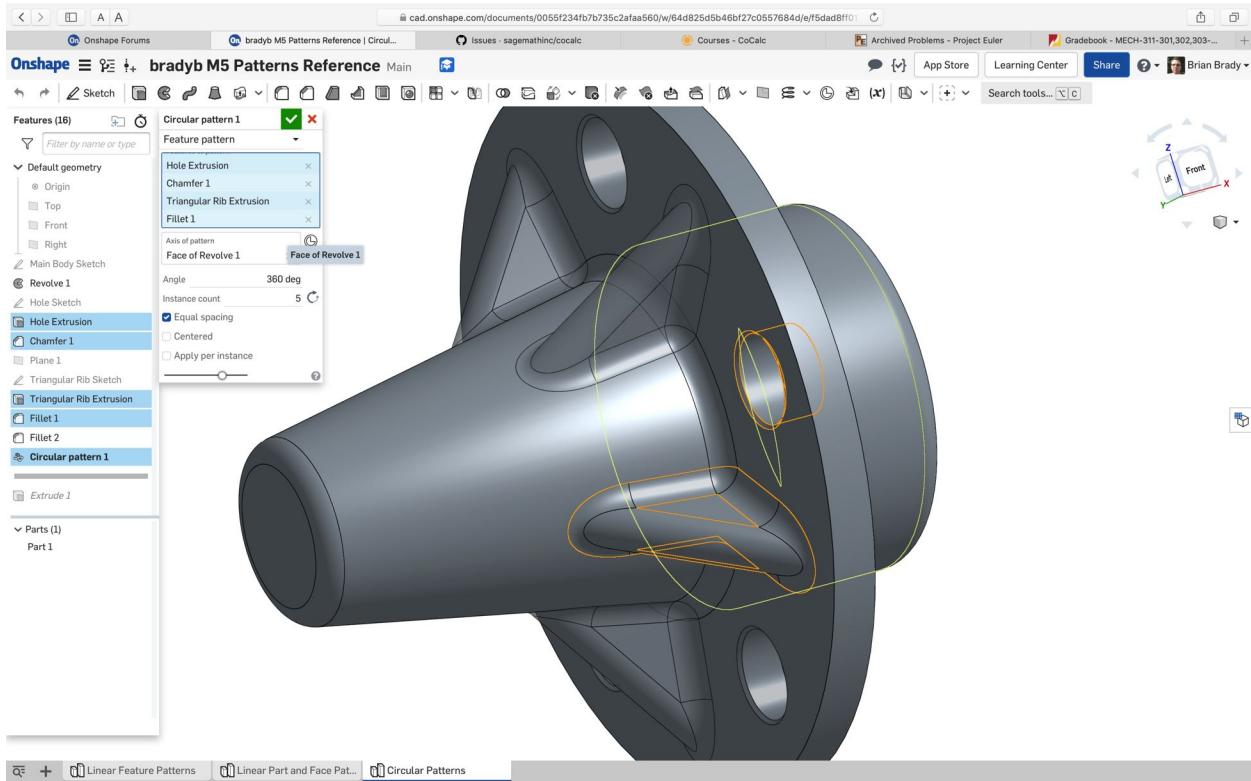
9. Use the Boolean tool to Subtract the parts from the tray. Add an offset of 0.02 inches to allow for room around the parts.



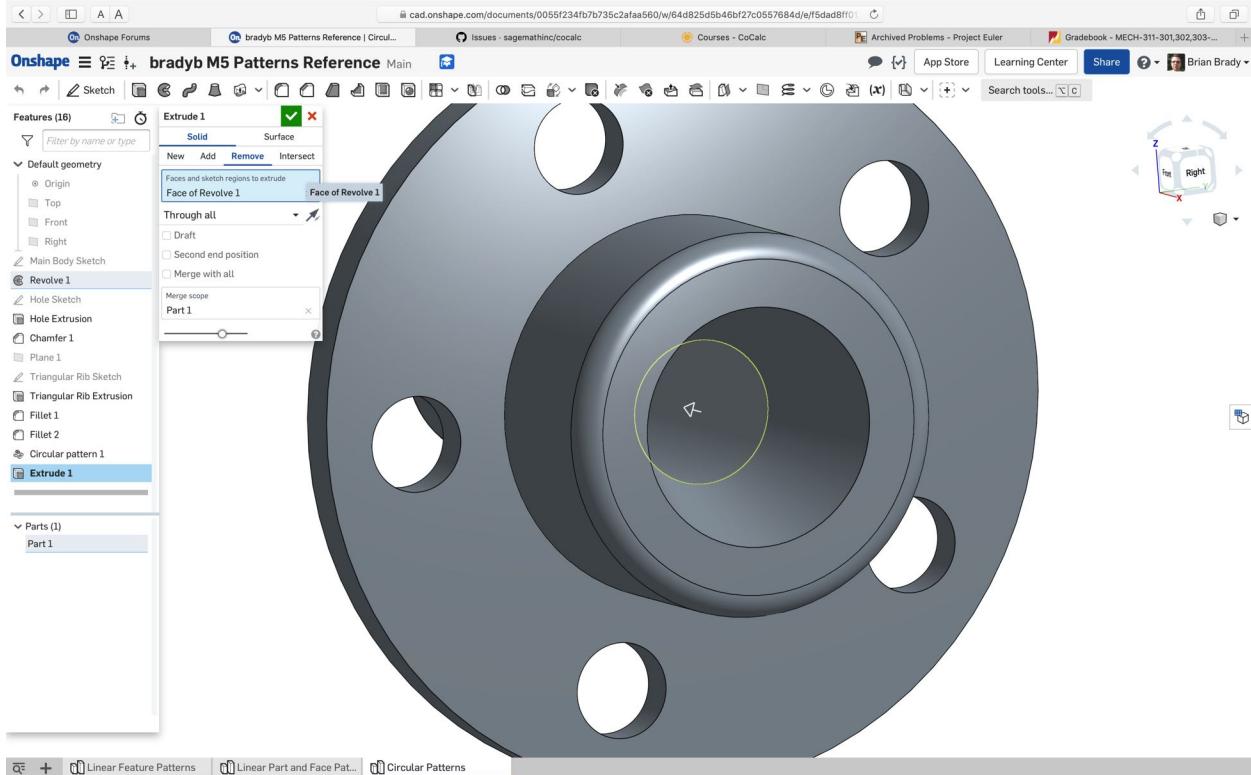
10. Turn on a section view using the front plane.



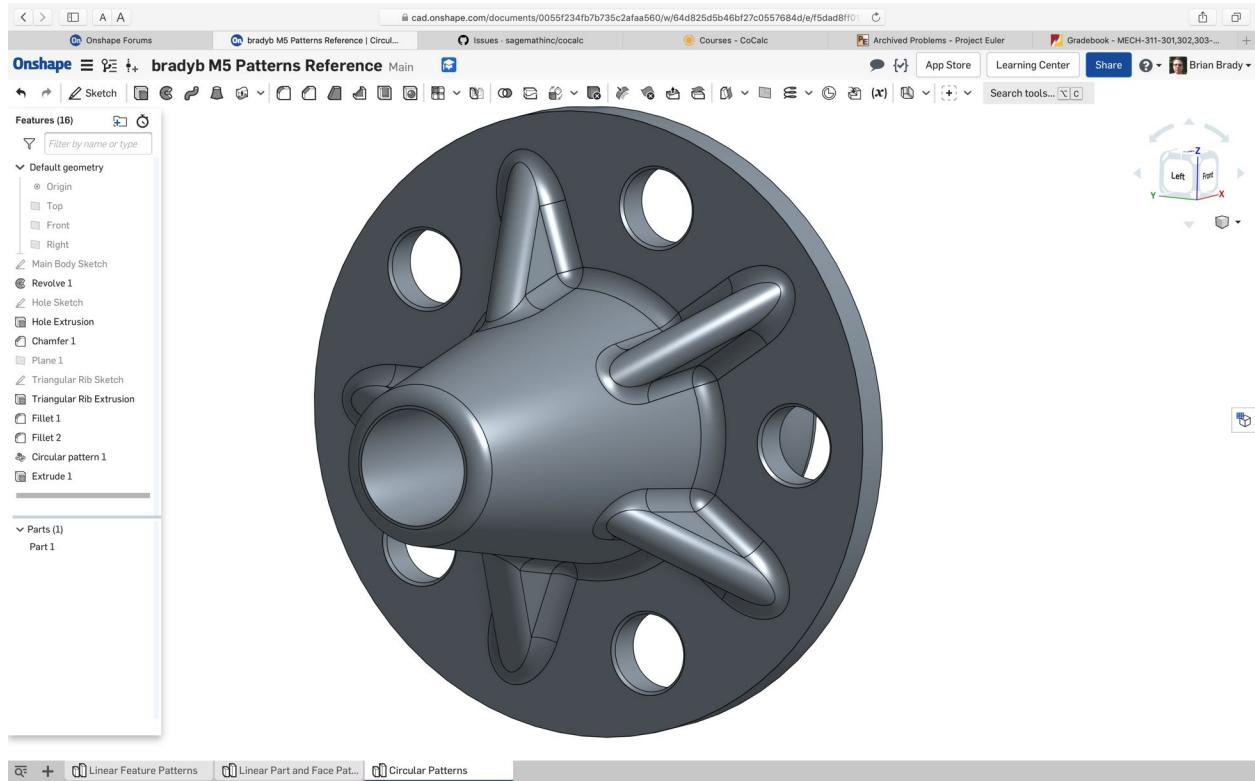
11. Select the Circular Patterns tab. Our goal here is to end up with 5 holes (with chamfers) and 5 ribs (with fillets) equally spaced around the central axis of the part.



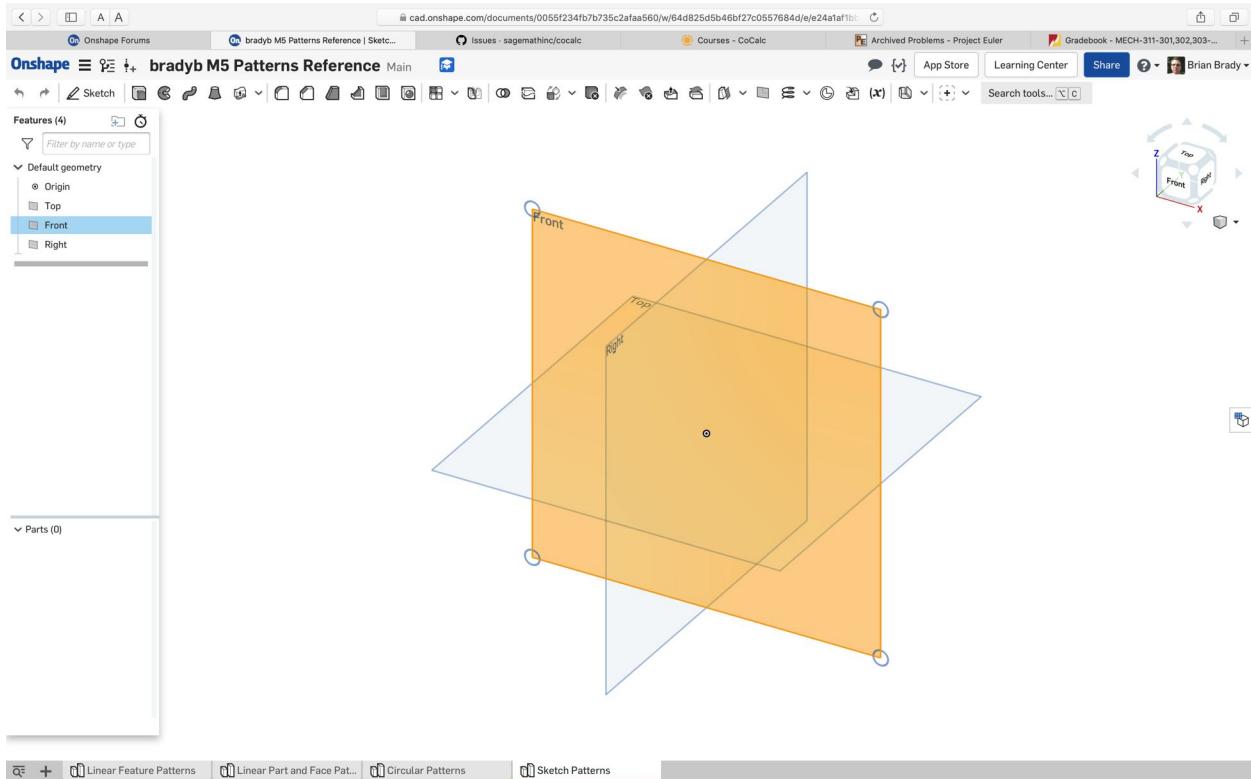
12. Use the Circular Pattern tool (use the arrow next to the Linear Pattern tool to find it) in the Feature pattern mode using the features shown. Use the outside of the cylinder as the axis.



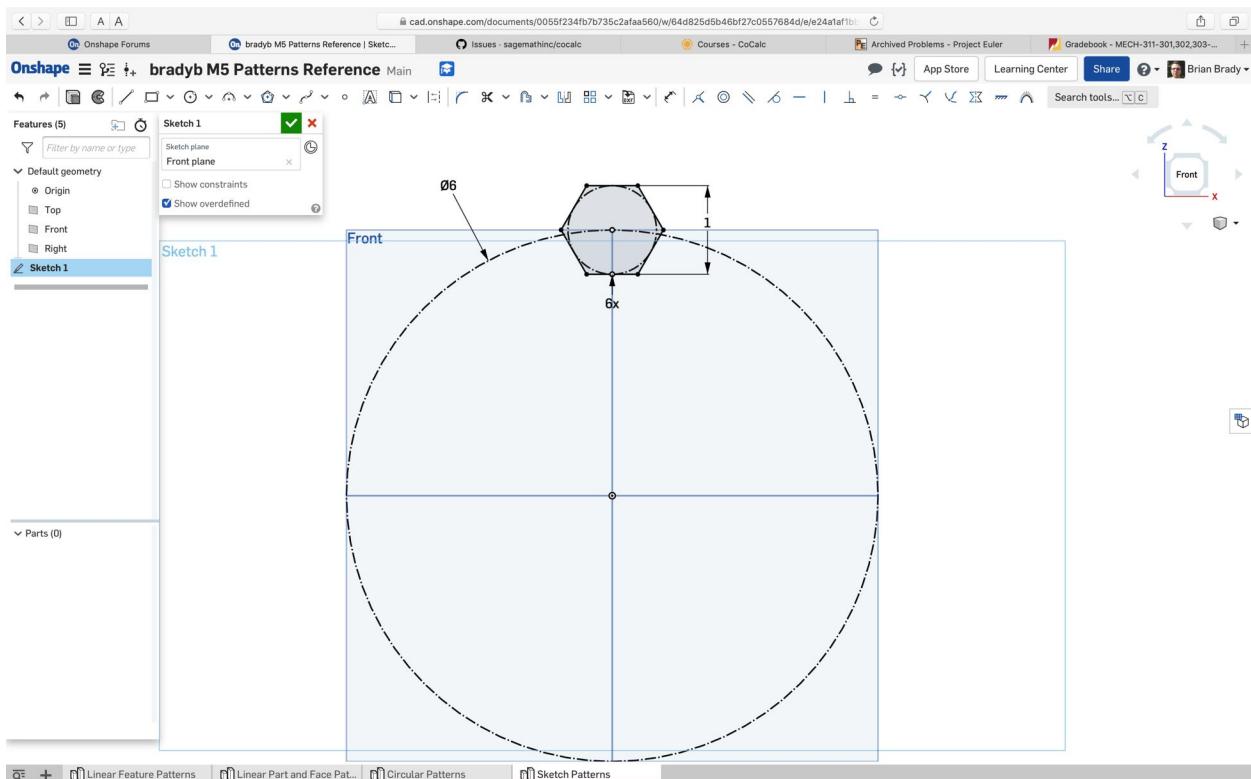
13. Make the center hole pass completely through the part by selecting the highlighted surface and extruding in Remove mode (through all).



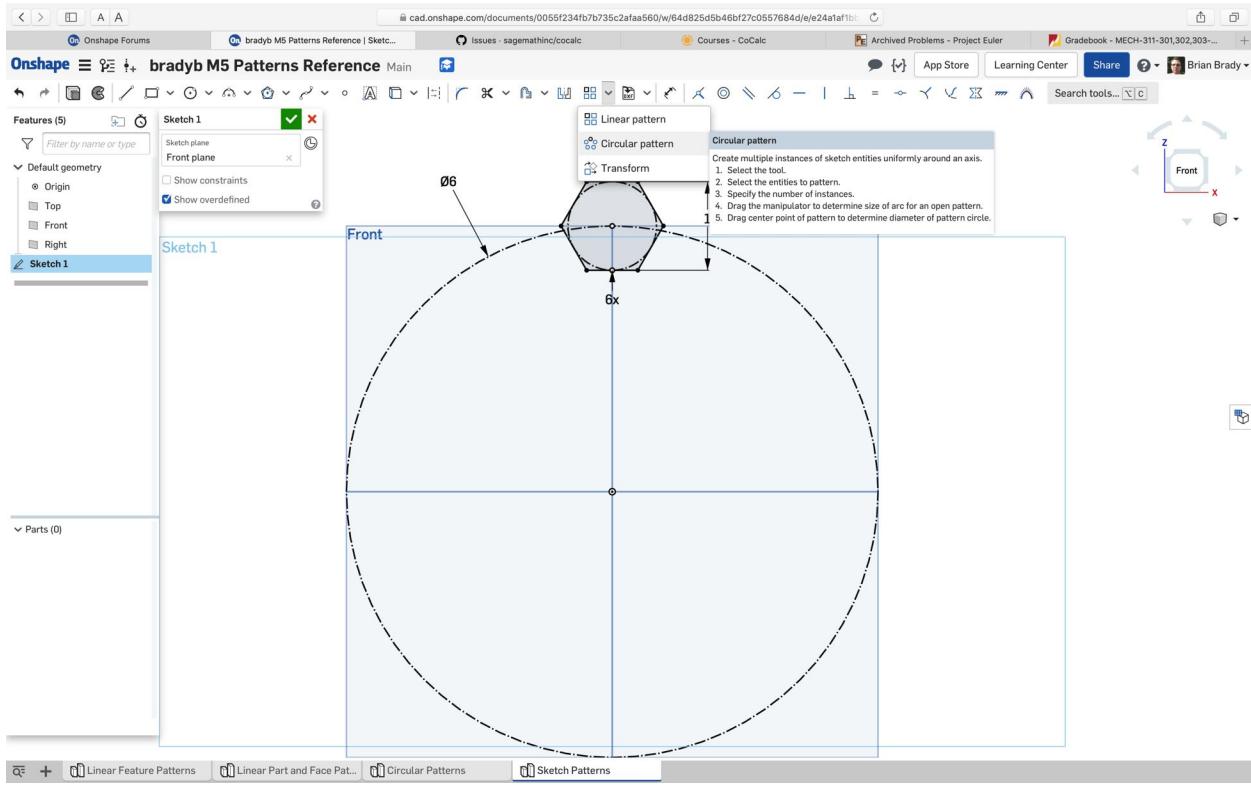
Finished part



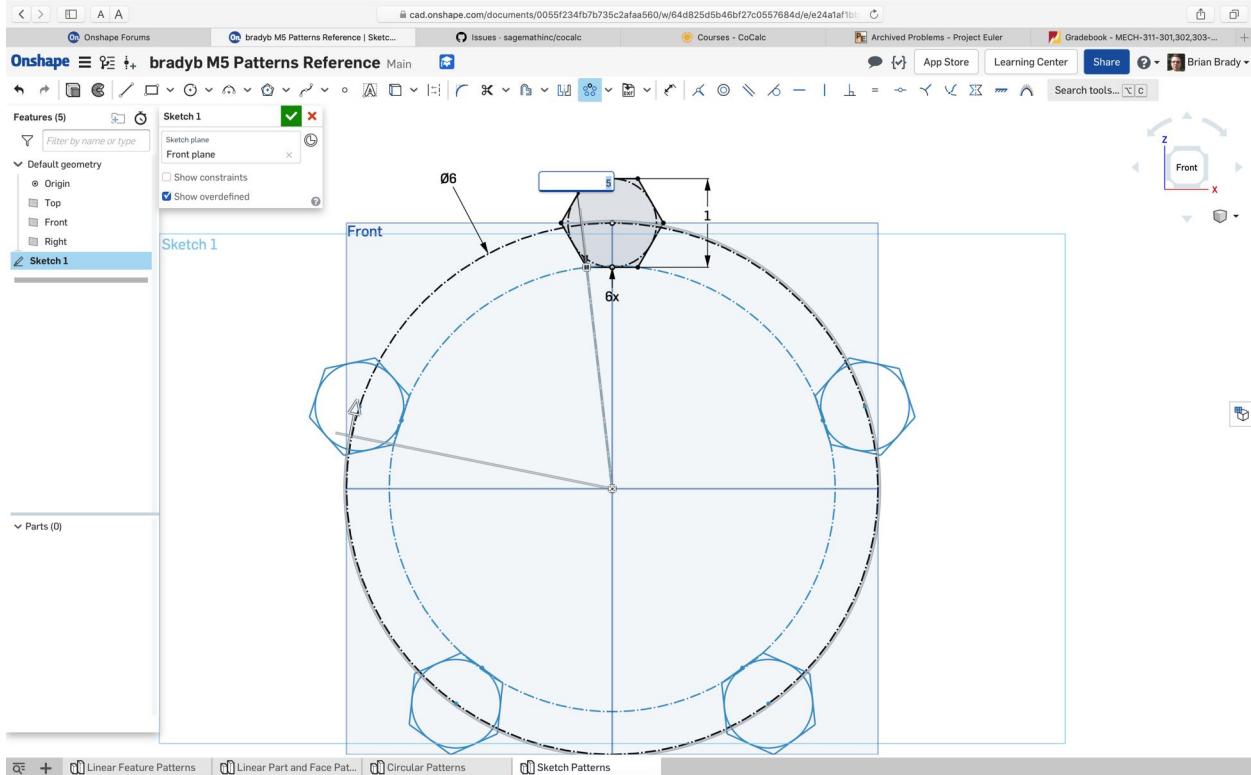
14. Create a new Part Studio tab named Sketch Patterns, select the front plane, and create a sketch.



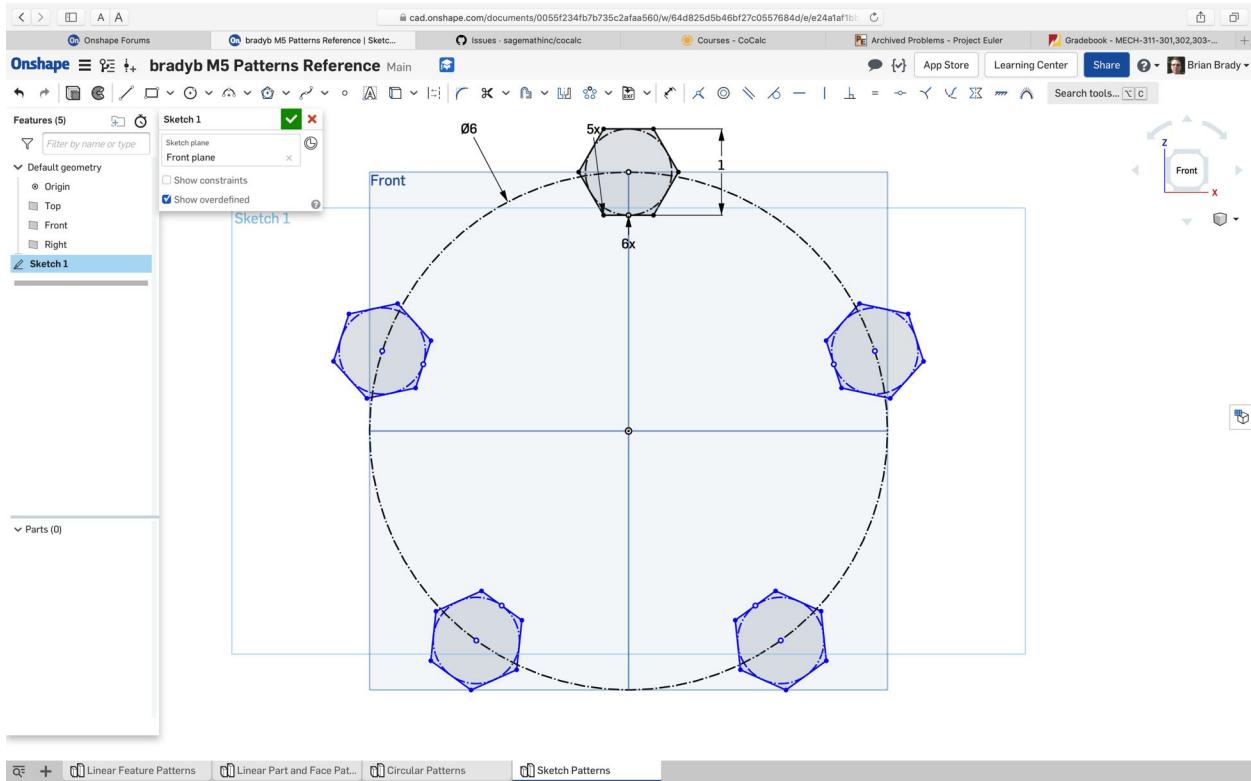
15. Create the sketch entities shown; a Ø6 construction circle centered at the origin and a 1 inch hexagon located on the circle vertically aligned to the origin.



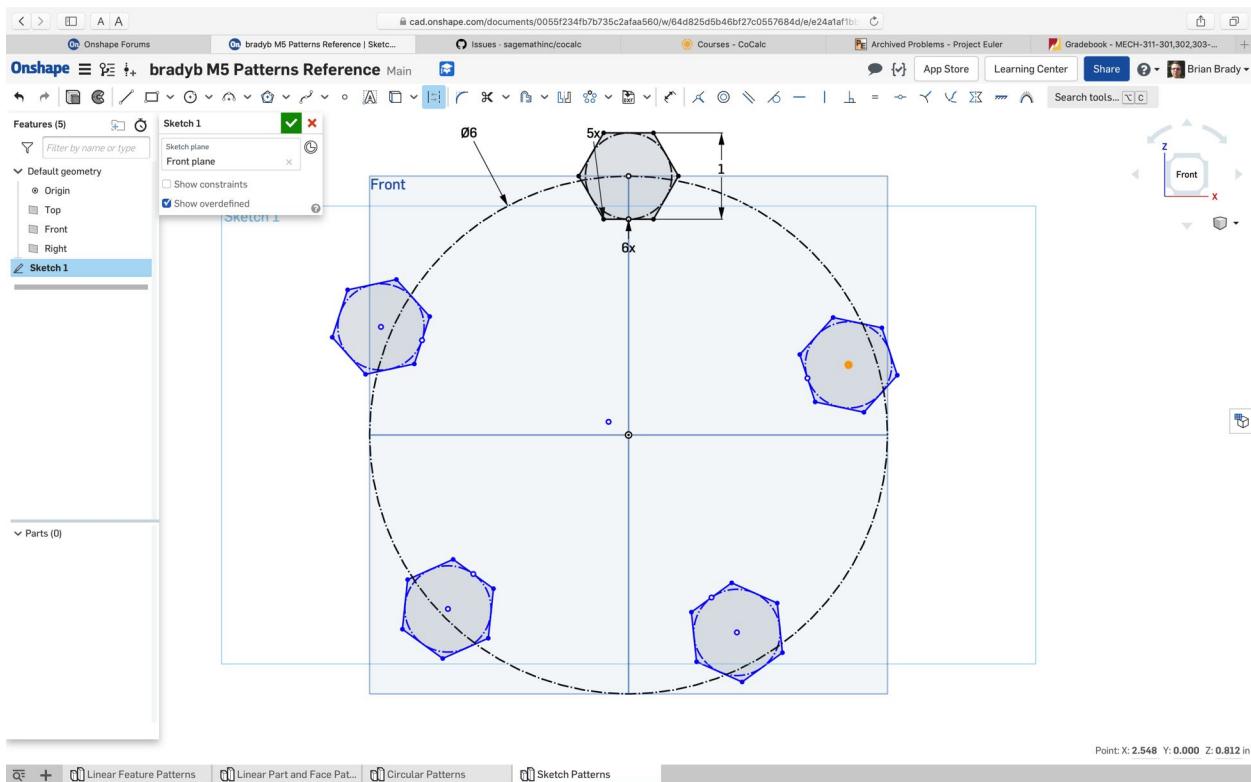
16. Click on the arrow next to the Linear pattern tool (while still in sketching mode) to pick the Circular pattern tool.



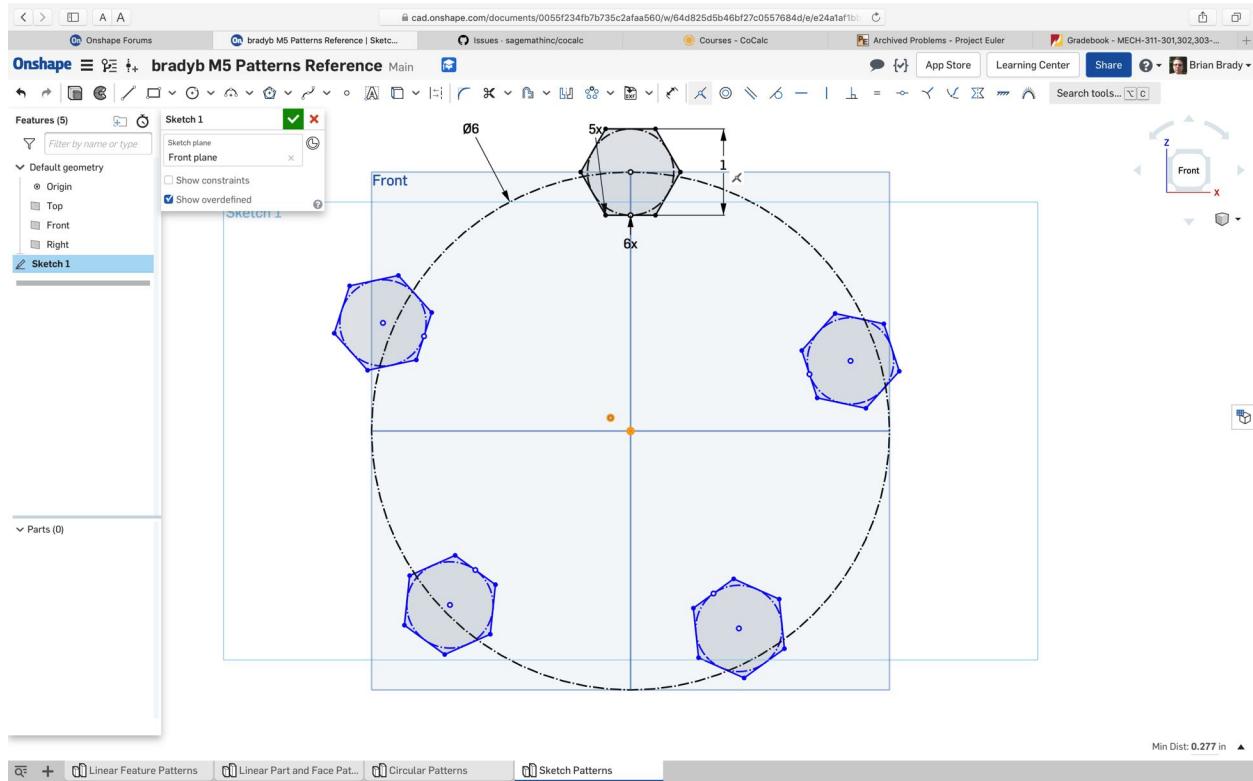
17. Use a crossing or individual picks to select the hexagon and the construction circle that belongs to it. Double-click on the 3X and set it to 5. Click in a blank space to finish.



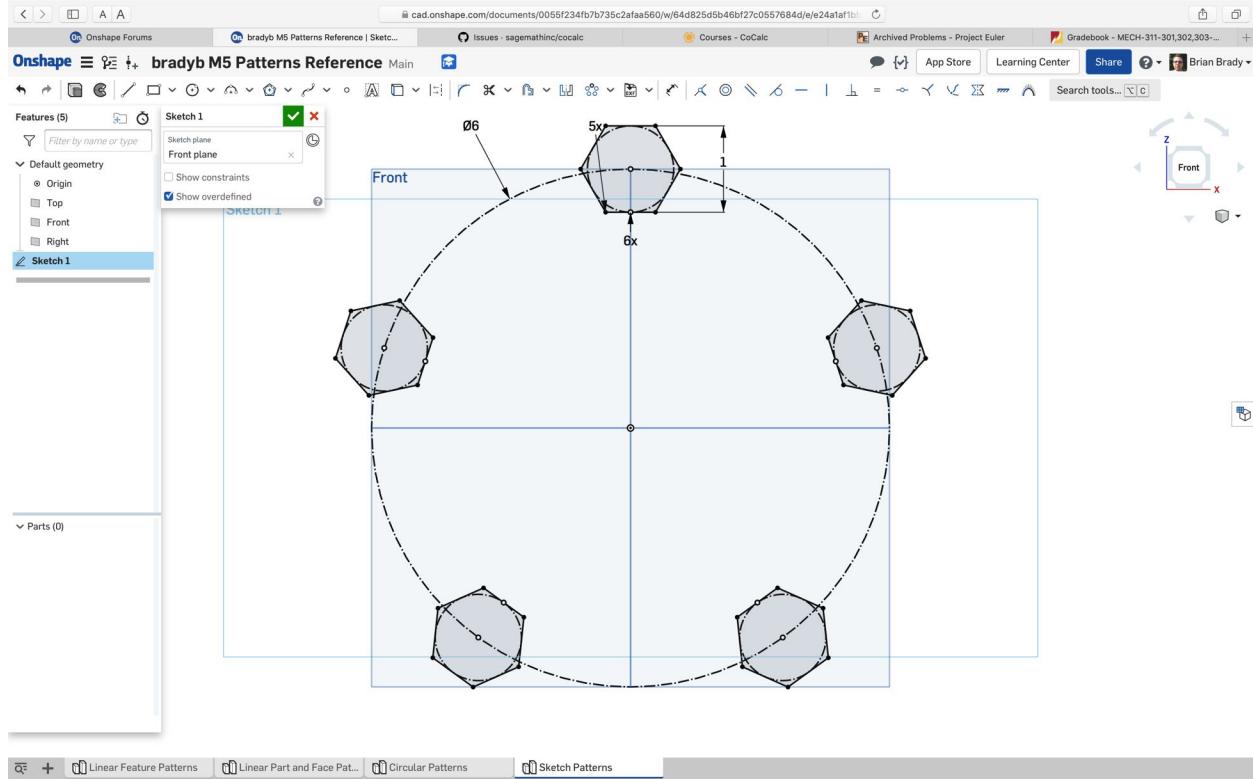
18. The pattern is created but notice the blue. We need to explicitly locate the pattern's center.



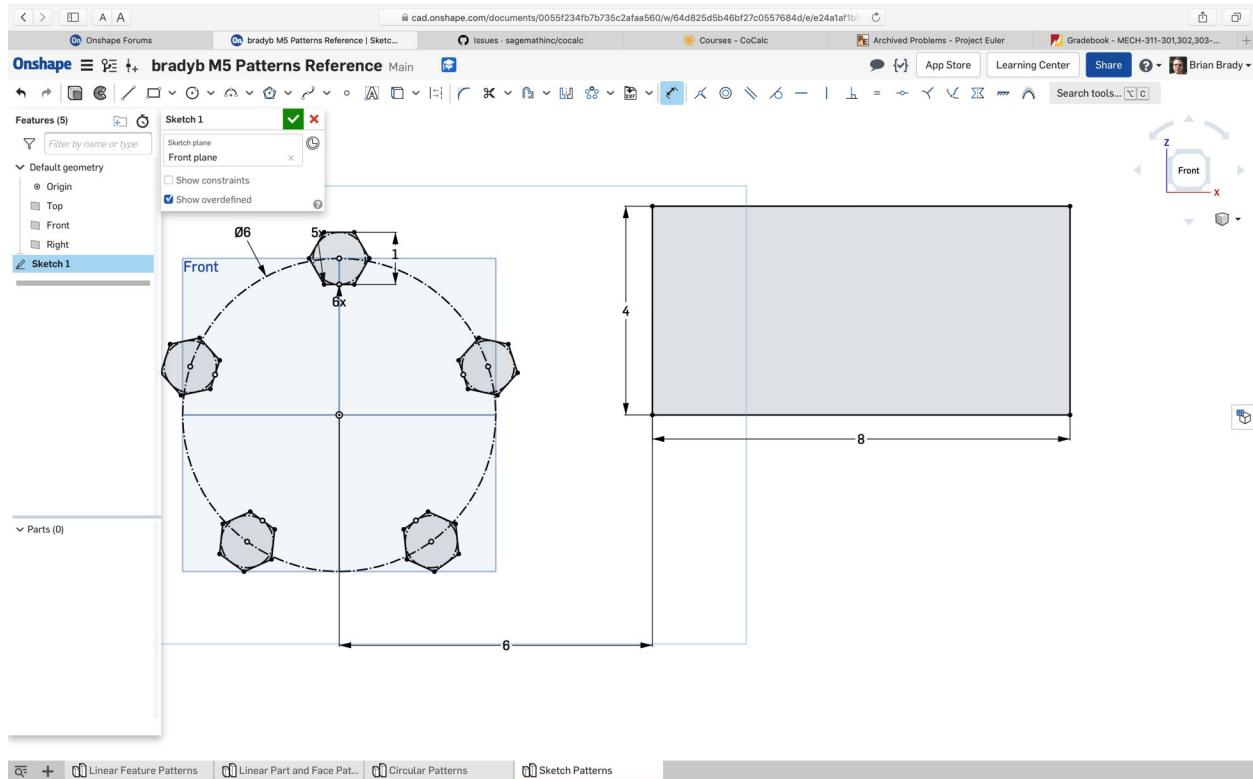
19. Drag one of the blue hexagon centers a short distance until you notice the blue point near the origin. This is the center of the pattern.



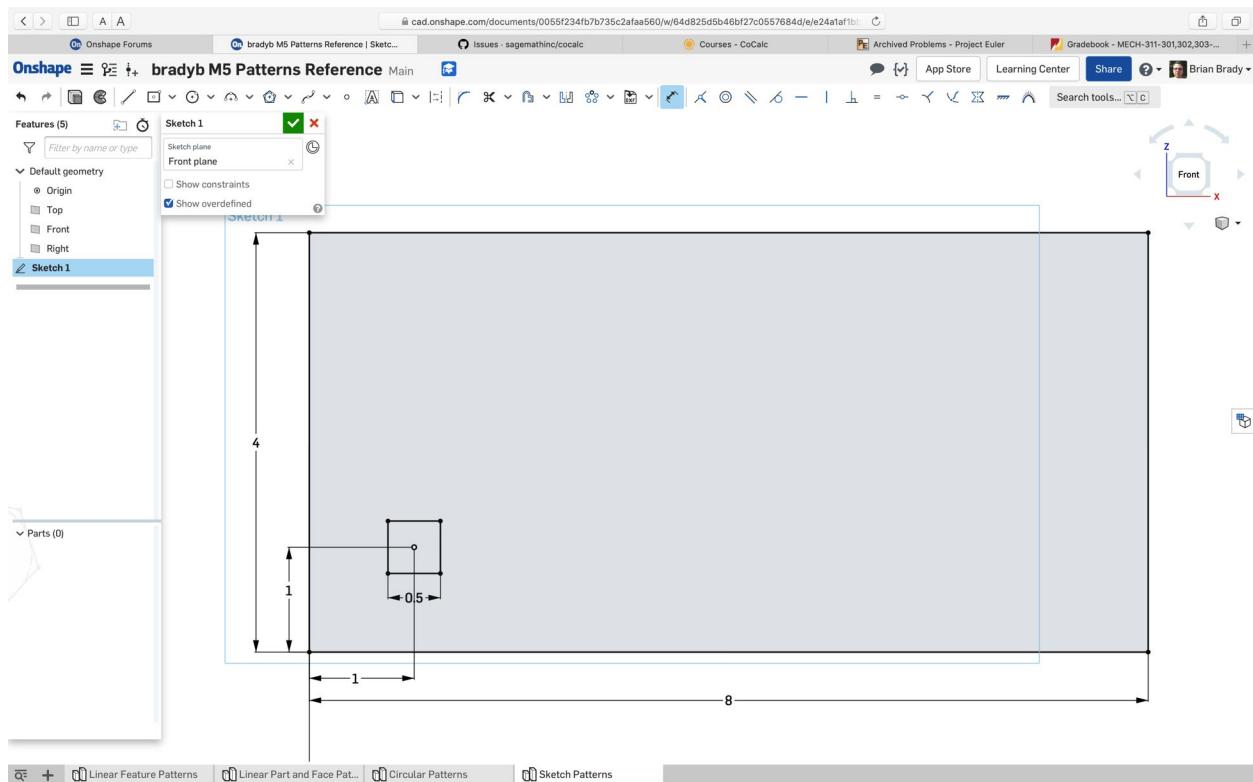
20. Select the pattern center point and the origin then use the coincident constraint tool.



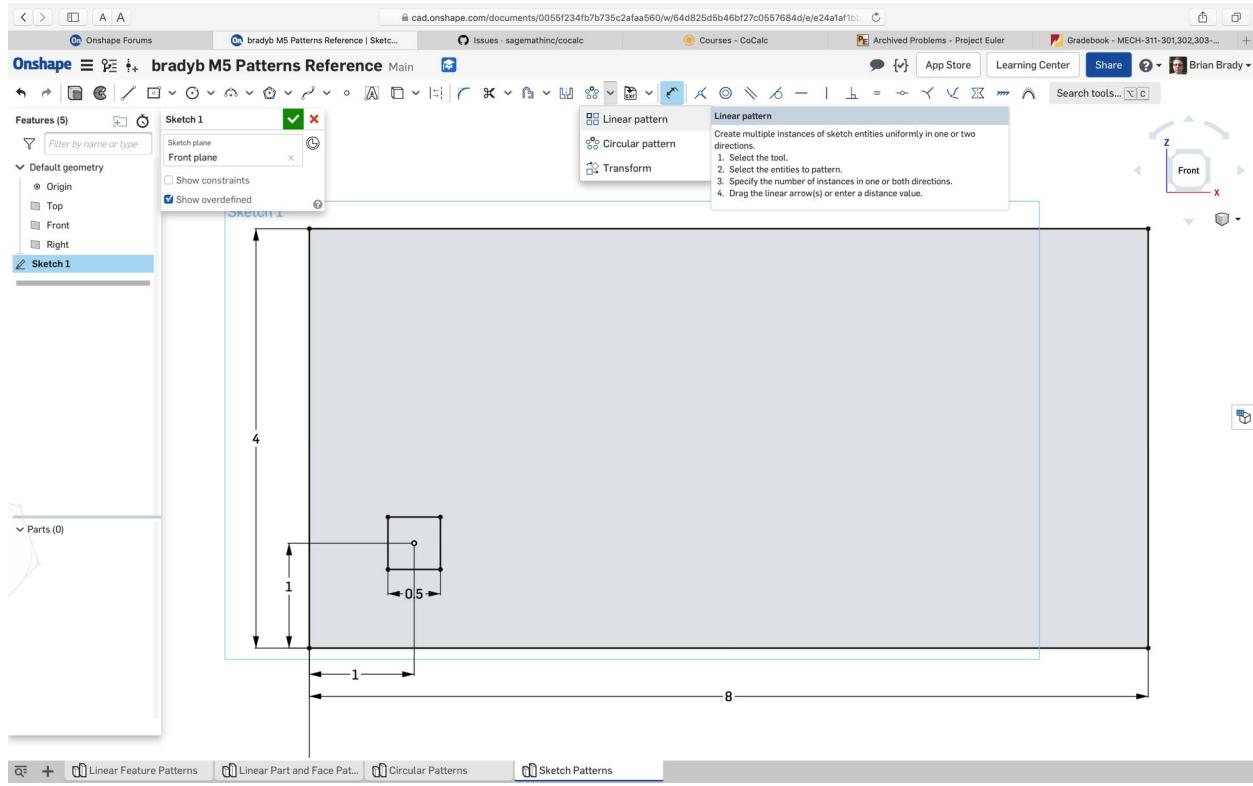
21. The pattern is now located and should turn black because it is fully constrained.



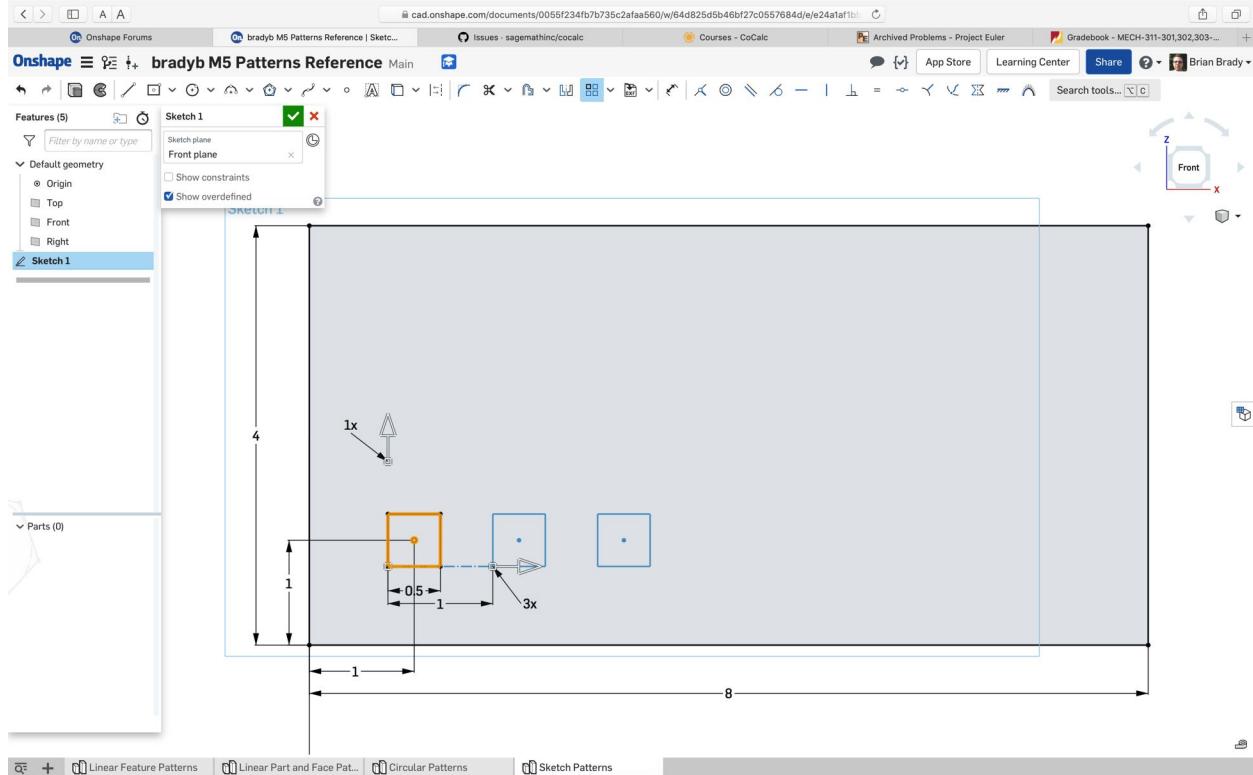
22. Add the rectangle shown to the sketch. Don't forget to locate relative to the origin with a dimension.



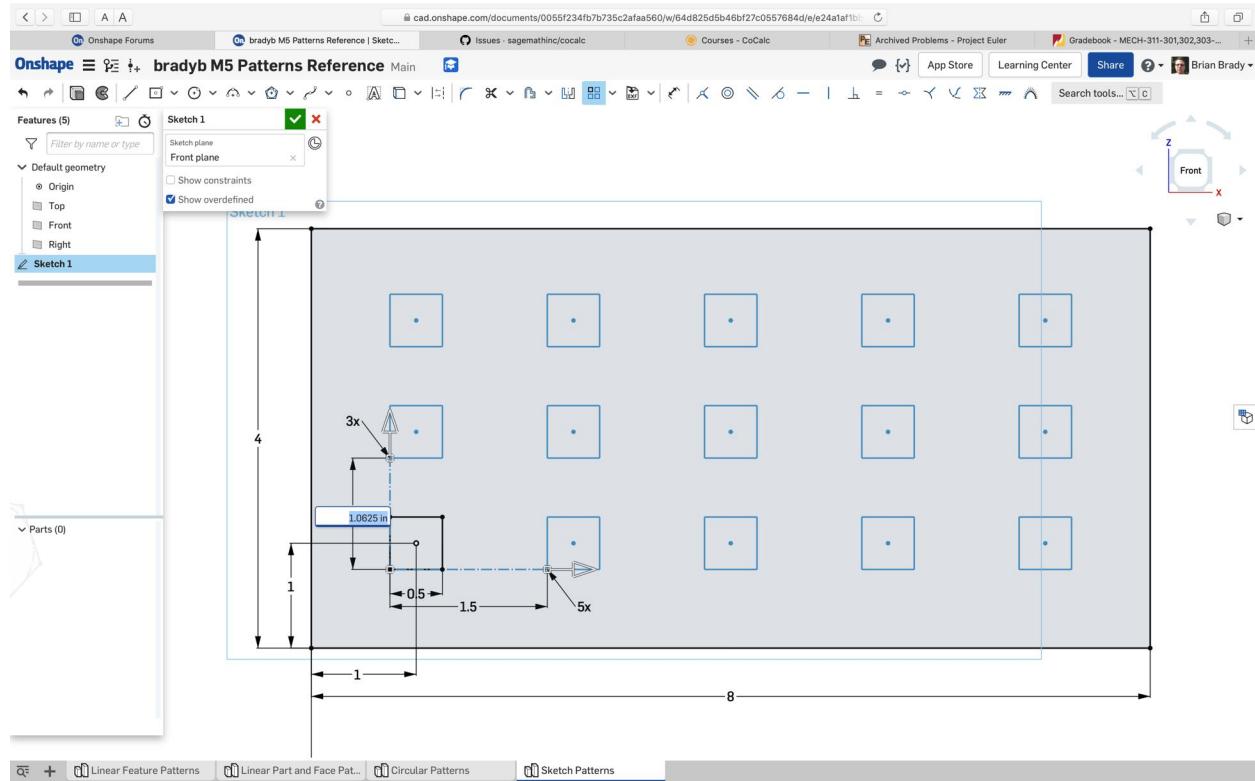
23. Create the 0.5 inch square at the location shown.



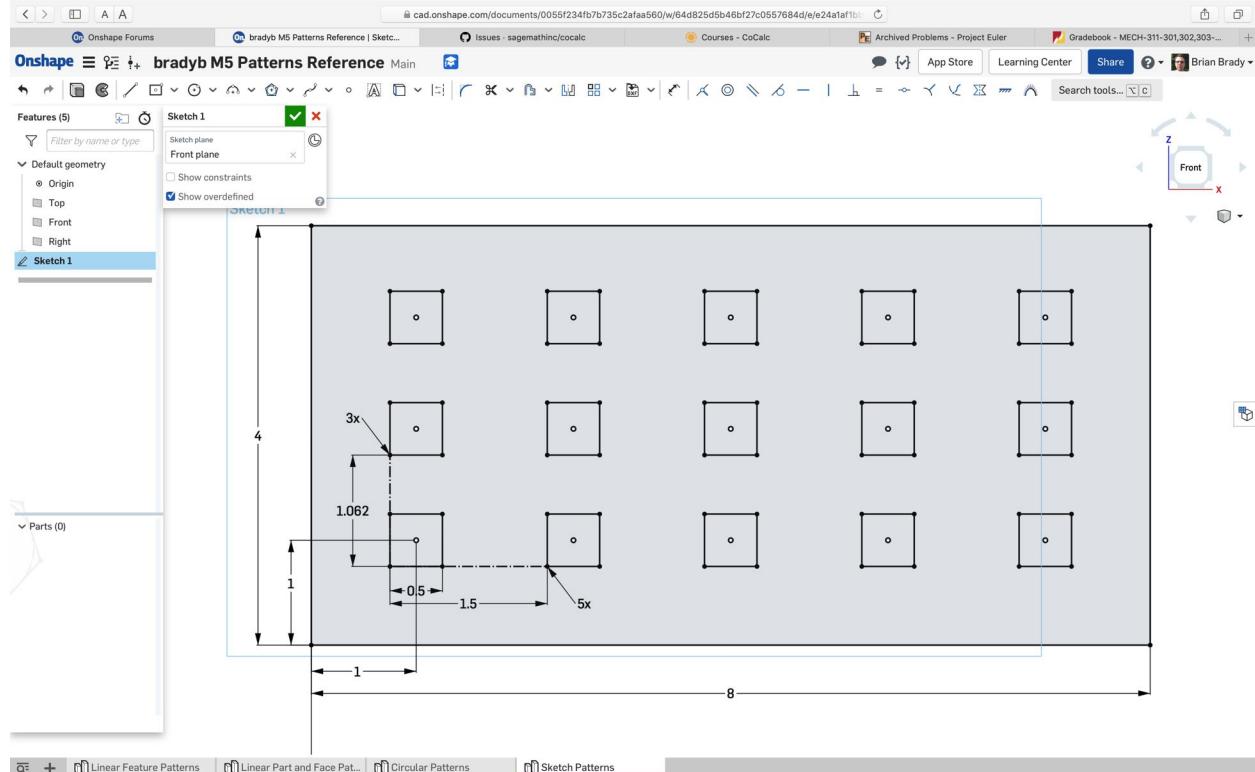
24. Pick the Linear pattern tool (we are still in the sketch)



25. Select the square. Initially, you will (should) get a pattern of 3 squares. Notice the spacing dimension, the 3x, and the 1x. These control the spacing and number of instances.



26. Double-click on each instance count and change them to 3 (vertically) and 5 (horizontally). Change the horizontal spacing to 1.5 inches and the vertical spacing to 1.0625 inches.



27. Click in a blank space to finish the pattern. This one will be fully defined.