Lesson: Create the ball joint sketch

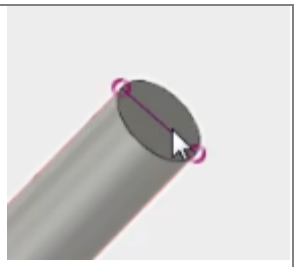
In this lesson, you will use various sketch tools and constraints to create the ball joint sketch.

Learning Objectives:

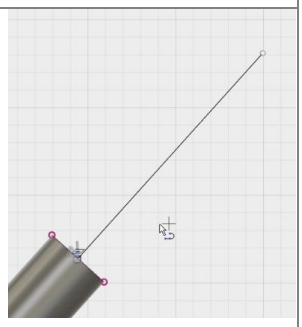
- Create a sketch with multiple profiles.
- Use Sketch> Project/Include> Intersect.
- Apply a colinear constraint.

Step 1: Create the ball joint sketch

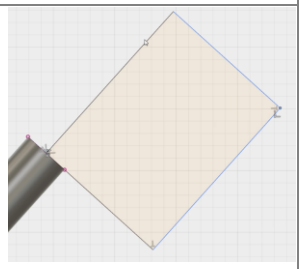
1. Carry on with the file from the previous example. Create a new sketch on the front plane. Select Sketch> Project/Include> Intersect and click on the lamp arm's top end face to create intersection geometry.



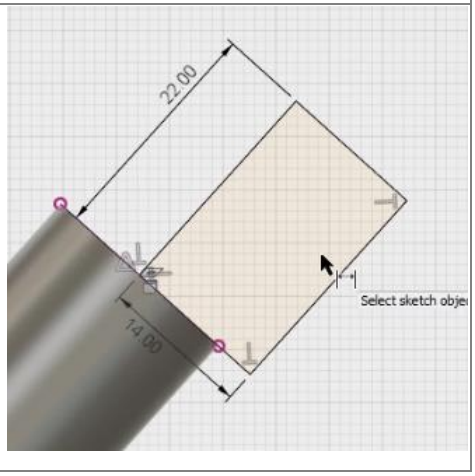
2. Draw a perpendicular line beginning at the midpoint of the intersection geometry you just created.



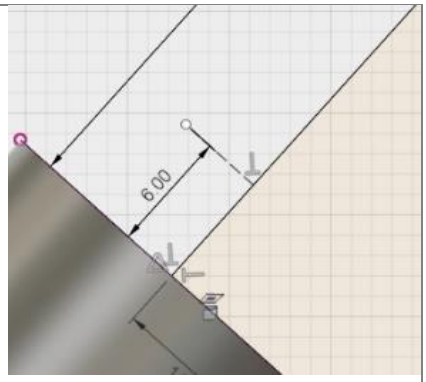
3. Draw three more lines to finish drawing a rectangle. Either use the auto-constraints or add constraints to make sure the lines stay perpendicular to each other.



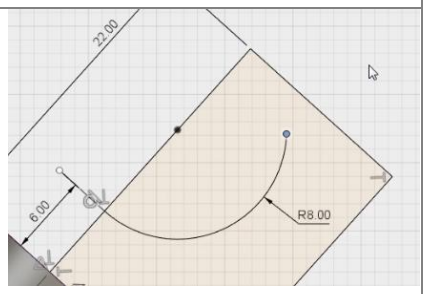
4. Apply dimensions of 22mm long by 14mm wide to the rectangle you just drew. Press ESC to leave the Dimension tool.



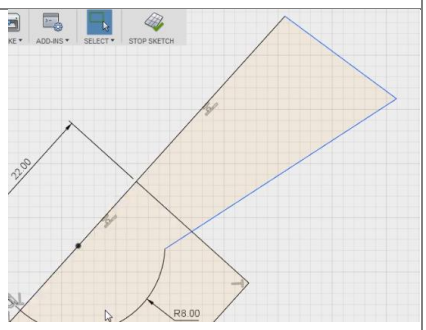
5.
6. Draw a line perpendicular to the rectangle length and dimension it 6mm from the end of the lamp arm. Make this line a construction line.



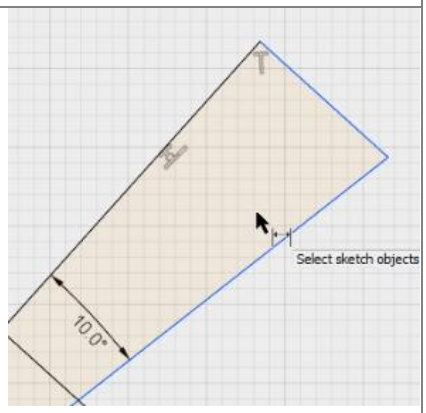
7. Select Sketch> Arc> Tangent Arc to draw an 8mm arc attached to the construction line.



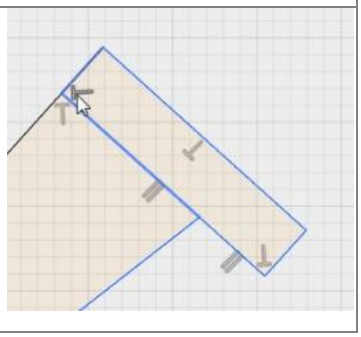
8. Add three lines to the arc you dust drew. Add the Colinear constraint between the inner line you just drew and the first line of the rectangle you drew earlier.

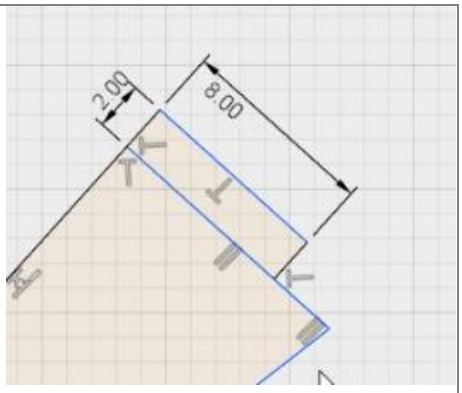
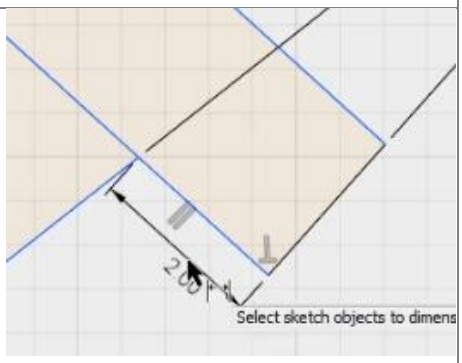


9. Add the Perpendicular constraint between the inner lines and the outermost line.Add a 10 degree dimension to the inner line and the outer line.



10. Using the line tool, add a rectangle to the end of the newest geometry making sure all the edges are perpendicular.



11. Apply dimesions of 2mm to the height and 8mm to the width of the new rectangle. Press ESC to leave the Dimension tool.	
12. Drag to adjust the geometry and add a dimension of 2mm.	
13. Dimension the inner lines for a length of 32mm. Save the file.