

DODECAHEDRON.

1. Turn a sphere. Find its diameter.
2. Multiply diameter by 0.524 ($\pi/6$).
3. Using the result as a radius from any point on the sphere draw a circle.
4. Using the same radius divide that circle into 5.
5. This circle should divide equally into 5 - if not check measurements and calculations.
6. From the 5 points on this circle draw 5 more circles using the same radius.
7. This will give you 12 intersection points. These will be;
 - a. The original first point selected on the sphere,
 - b. The five points marked on the circle drawn from the original point,
 - c. The five intersection points that arise from drawing the five more circles from these five points
 - d. The point where all 5 of these circles intersect (the opposite pole to "a" above).
8. Mark each of these points with a bradawl. These will be the 6 axis points needed to turn the 12 sides of the dodecahedron. Circle each bradawl point.
9. There will now be 20 "triangles" on the sphere.
10. Each side of the "triangle" will have a "petal" like shape.
11. Find the centre of each triangle using 3 arcs of an estimated radius that intersect near the centre of the triangle.
12. Mark each of the centres lightly with a bradawl.
13. Mount the sphere between 2 opposing centres from the 12 marked.
14. Draw a circle that connects the three "triangle" centres nearest each axis point.
15. This line is the depth and diameter of the cut to be made.
16. Cut down to this line at 90 degrees to the axis of the lathe.
17. As you are holding between centres you will be leaving a holding nub at each end.
18. Repeat this for each axis. Note as the piece progresses there will be less and less wood to cut.
19. In addition you may also be nicking the holding nubs of previous cuts.
20. When all 6 axis have been done remove from lathe and cut off the holding nubs.
21. Sand each pentagon face to your satisfaction.