Last update: March 12, 2021

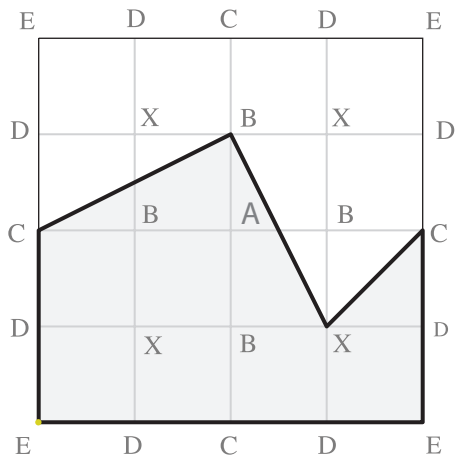## Half scale example below:

CB = square root of 5:   2.24
BX = square root of 5:   2.24
XC = square root of 2:   1.41
The example below is at half scale.
Your design must be different.

Note: this sheet must be used in conjuntion with page 2 which has all the concentric circles at full scale.
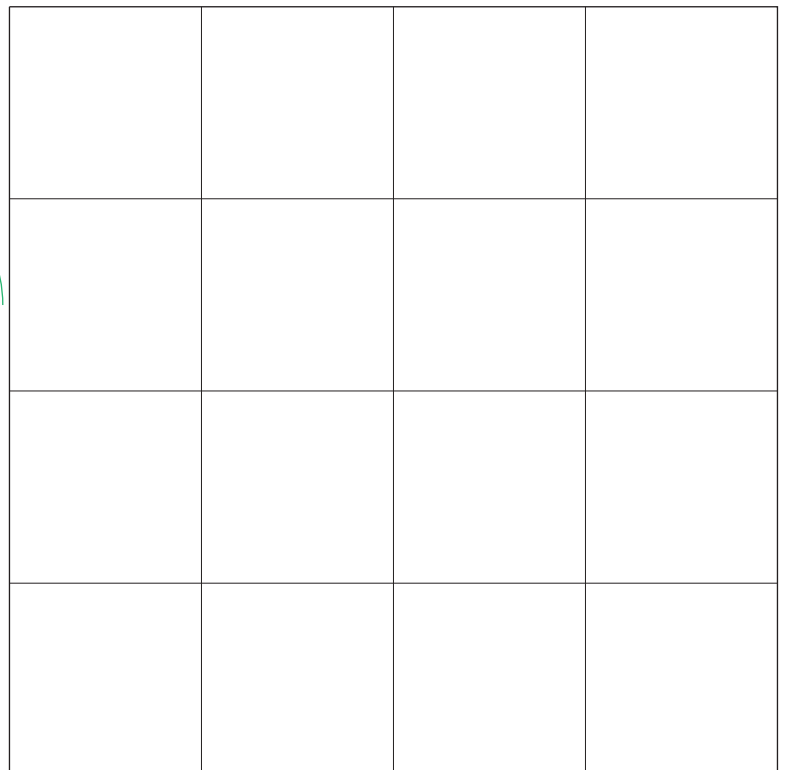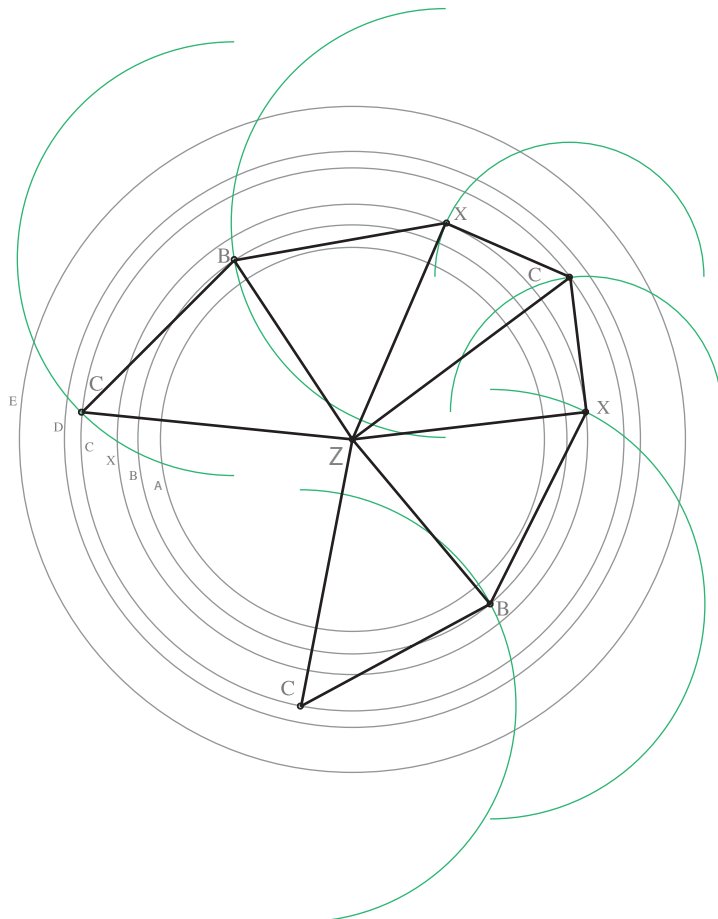
If you cannot print the sheets, you can draw separately the 4x4 inch square below; then draw the circles with the compass on another sheet, taking the measurements from your drawing 18: Distances to Center.

First draw your own section design on the 4x4 square and mark the points with the appropriate letter. Do not add big dots to the points. Then use the compass to draw, on the circular grid and in sequence, the circles with radiuses given by the lines in your section. In the half-scale example, these are, starting from the left: CB, BX, and XC. Start by taking the distance, using the compass, of your first line from the left (in the example: CB) and pointing the compass, with that distance, anywhere on the large circle C in the circular grid chart, and draw that circle. Where that first circle intersects B, that's the other end of your line CB. Connect the two points to draw the line, than connect the points C and B to the center Z to form your first triangle.

Repeat the process for your other lines, in sequence, drawing each triangle next to the previous. Once you complete the set, this can usually be duplicated in a reverse fashion, so that your design might now look like a butterfly or a moth. Later, that shape can be optimized if it turns out that some adjacent triangles lie on the same plane (this is the case in the example where the triangles CBZ can be joined later to form a rhombus).
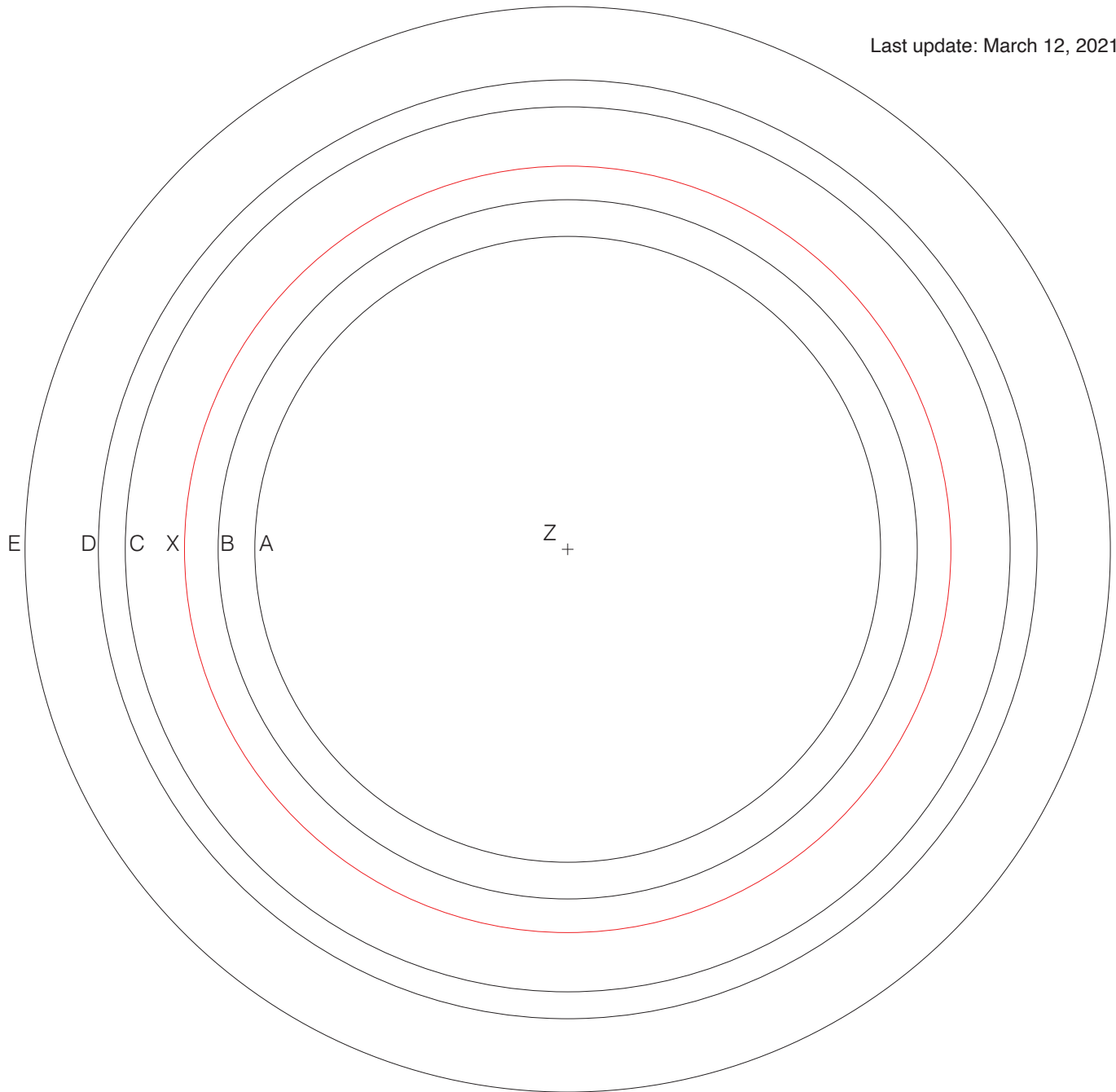
Thanks to former student Slate Werner for suggesting this grid design.

NOTE: This sheet MUST be printed at 100% in order for it to work. Double check after printing to see if distance from circle D to center Z is exactly 3 inches

Use the compass and the grid below to draw the internal surface shape of your sectioned cube. Draw your face section on the full-size square grid first (page 1).

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AZ (radius) = 2   diameter = 4
BZ (radius) = 2.23   diameter = 4.46
XZ (radius) = 2.45   diameter = 4.9
CZ (radius) = 2.83   diameter = 5.66
DZ (radius) = 3   diameter = 6
EZ (radius) = 3.47   diameter = 6.94

Note: this sheet must be used in conjunction with page 1 which has the 4x4 base grid and the drawn example at half scale.

If you cannot print the sheets, you can draw separately the concentric circles with the compass on one sheet, taking the measurements from your drawing 18: Distances to Center. Draw the 4x4 inch square on a separate sheet.

NOTE: This sheet MUST be printed at 100% in order for it to work. Double check after printing to see if distance from circle D to center Z is exactly 3 inches