

Engr 210 AA -- **Engineering Graphics**
Lab #6 –Isometric Sketching

Introduction:

The ability to create freehand sketches is an important skill for engineers and designers. Sketches are a very quick and powerful aid in communicating technical ideas and design concepts that may be very difficult to express verbally. In this assignment you will learn and practice sketching isometric, oblique and perspective drawings.

Isometric sketches are based on isometric axes that are based on three lines that are 120 degrees apart. Receding lines are parallel and scales along the three axes are the same. When creating isometric sketches, it is best to start with a rectangular prism or cube and think of sketching as working from a piece of wood and trimming away the unnecessary areas.

Oblique sketches are based on an axis system that contains one perpendicular set of axes and one receding line. The front plane is perpendicular so that the front face of a cube will appear as a square, and the front face of a cylinder as a circle. The receding lines are parallel to each other and can be at any angle, although 30 degrees is most common.

Perspective sketches have receding lines that converge to a vanishing point. Perspective sketches are visually accurate in that objects farther away appear smaller than those that are closer. Hence, perspective drawings are often referred to as pictorial drawings. Perspective drawings can have either two vanishing points (two-point perspective) or just one vanishing point (one-point perspective). A two-point perspective looks similar to an isometric drawing. A one-point perspective sketch is similar to an oblique sketch. The front surface is sketched using a 90-degree coordinate axes and receding lines are sketched from the front plane to a vanishing point.

Problem 1.

Given complete top, front and right views in Figure 1, sketch an isometric pictorial in the space provided.

Problem 2.

Given complete top and front views in Figure 2, sketch the right view and isometric drawing.

Problem 3.

Given complete top, front and right views in Figure 3, sketch an isometric pictorial.

Problem 4.

Given complete front and top views in Figure 4, sketch the top view and isometric drawing.

Figure 1

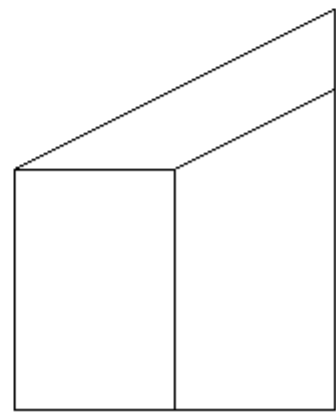
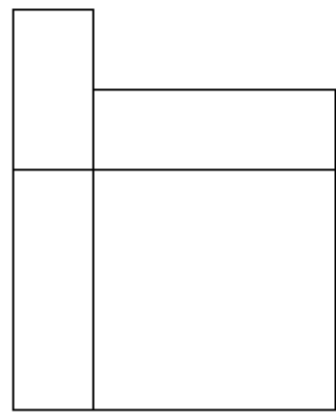
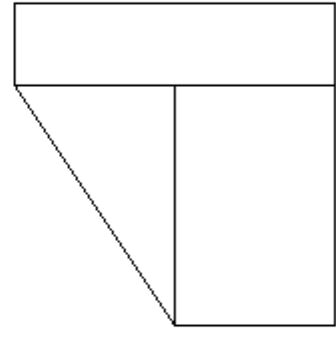
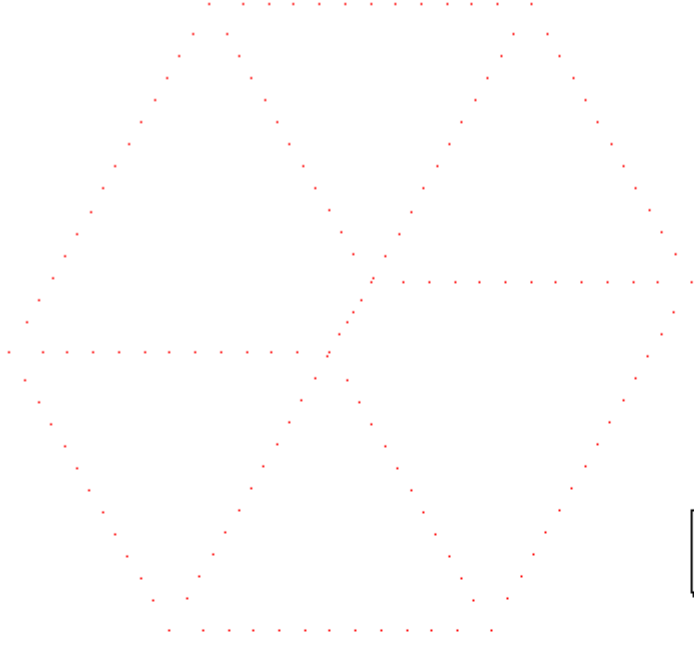


Figure 2

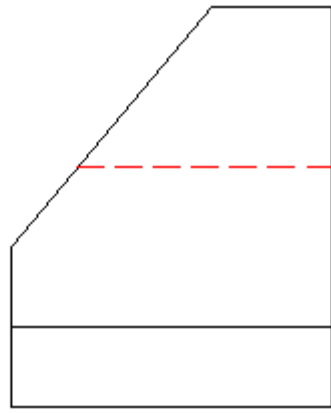
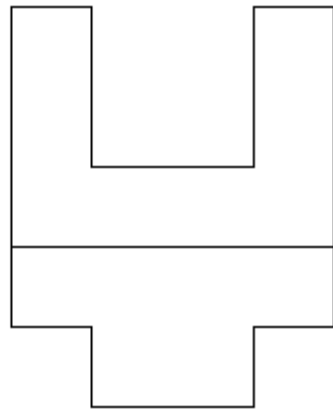
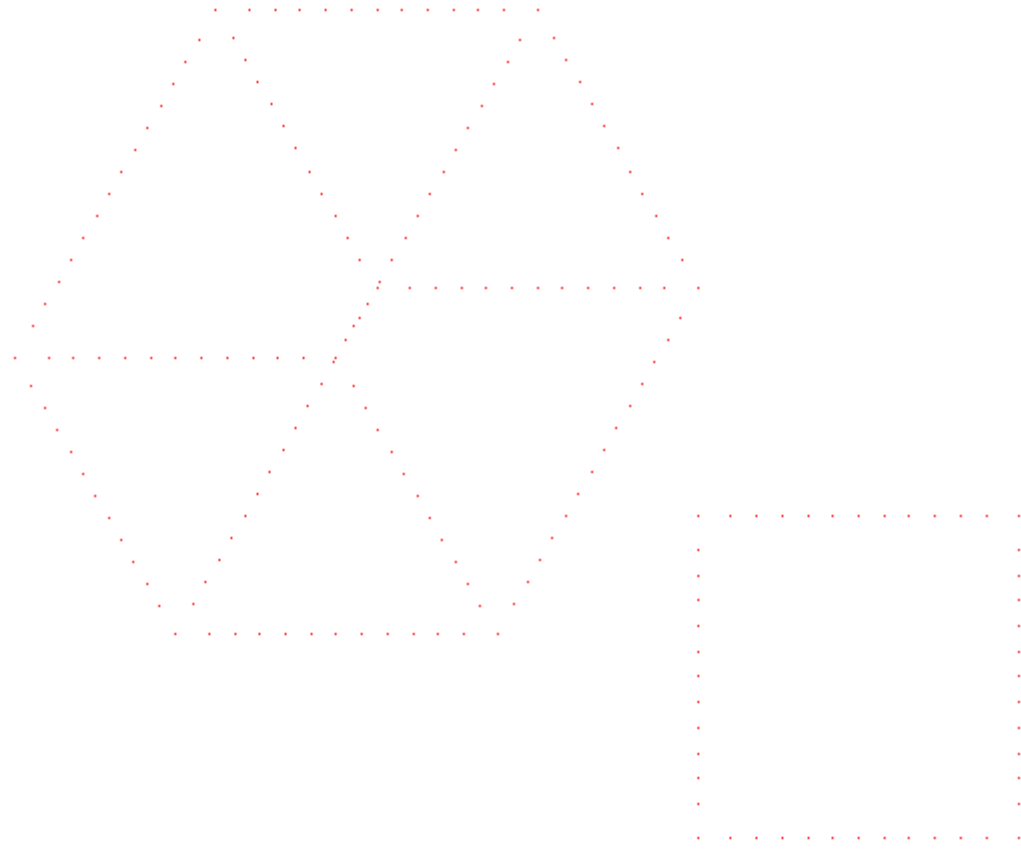


Figure 3

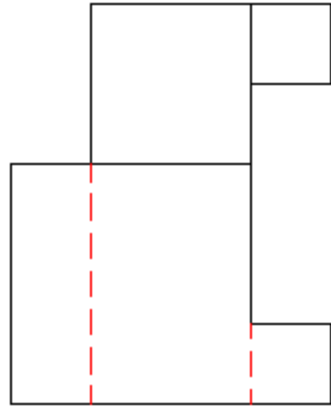
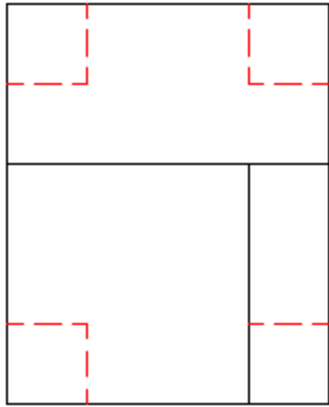
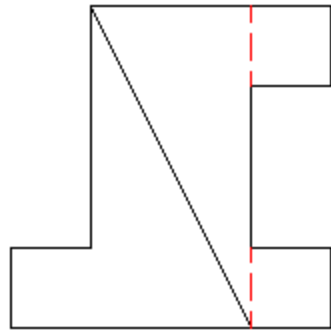
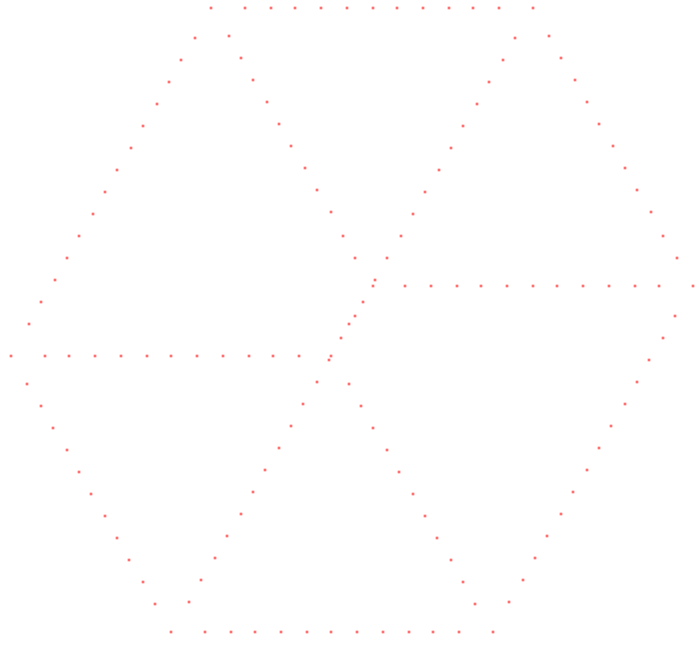
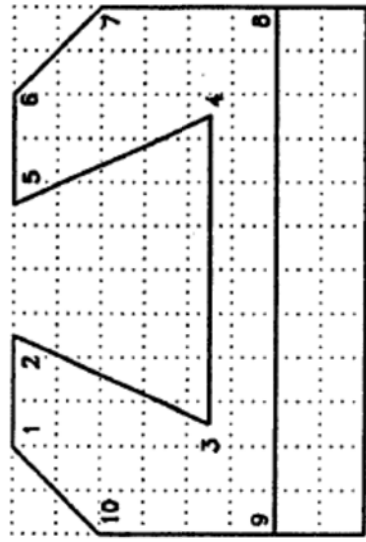
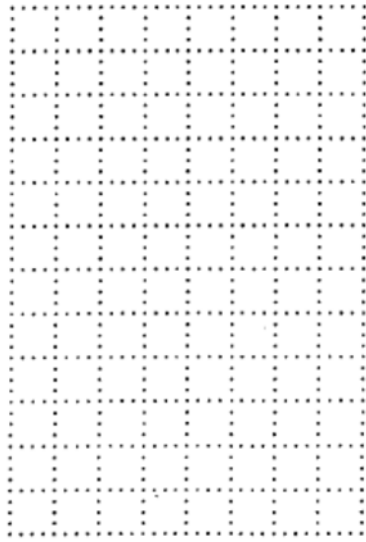
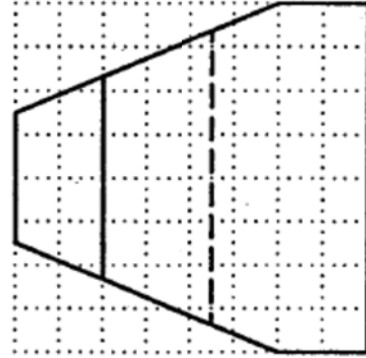
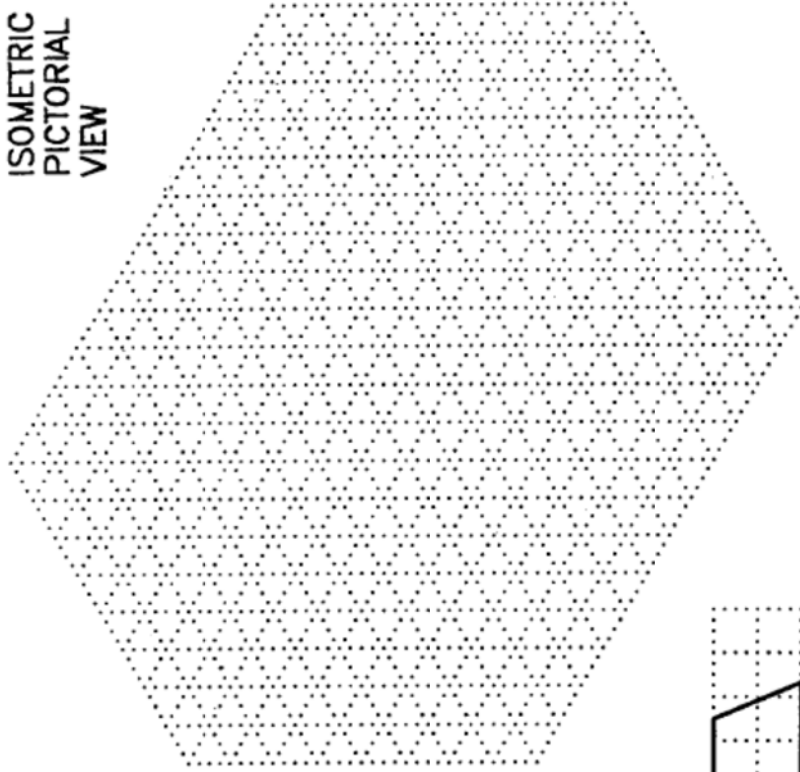


Figure 4

LABEL SURFACES, NUMBER CORNERS WHEN INDICATED.



ISOMETRIC PICTORIAL VIEW



GIVEN: FRONT AND RIGHT SIDE VIEWS ARE COMPLETE. SKETCH TOP AND ISOMETRIC PICTORIAL VIEWS. LABEL CORNERS AS SHOWN.