CHAPTER 40 EXERCISES

1. Grid Survey

Figure CE40-1

Open the **GRID-SURV** drawing from Chapter 22 Exercises. Use the *3dmesh* command to create a surface model of the terrain. For each point, use the *.xy point filter* to select its X and Y coordinates interactively and then type in the Z elevation as shown on the point attribute. Set up three *Vports* on the screen as shown in Figure CE40-1. Set up a *Vpoint* for each viewport so the top left viewport displays a plan view, the bottom left displays the left elevation, and the large right viewport displays an isometric or other 3D view. *SaveAs* **CE40EX1**.

2. Contours

Figure CE40-2
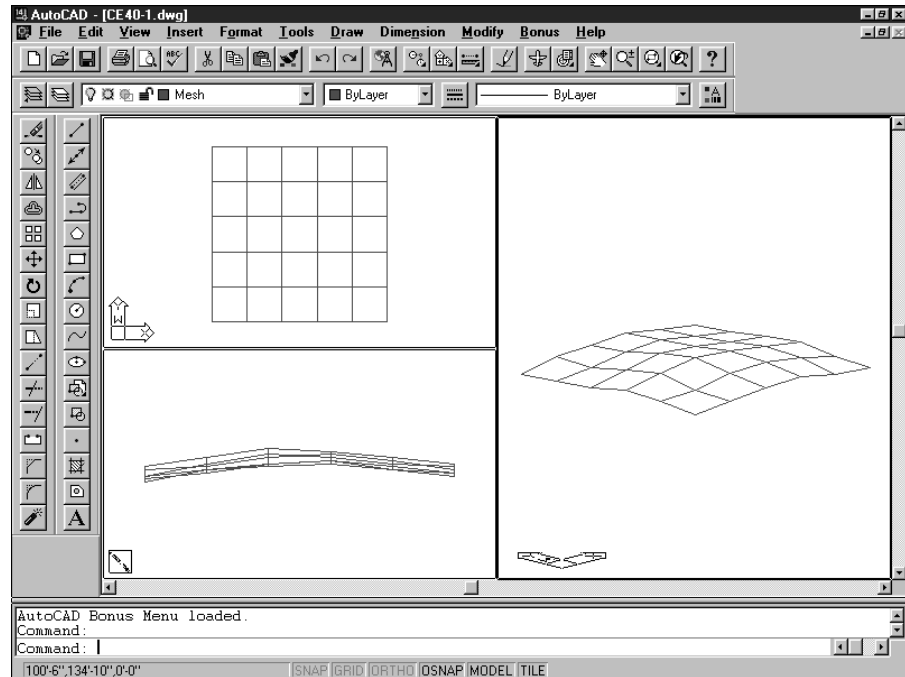
Open the **CE37EX2** drawing from the Chapter 37 Exercises. *Offset* the 50′ elevation contour by **25′** to produce a smooth ground outside the pond. Use the *Rulesurf* command to connect the contours with a surface. Change *TILEMODE* to **0** and *Erase* all of the objects in paper space. Create 4 new viewports with the *Mview* command. Set the *Vpoint* for each viewport as shown in Figure CE40-2. *SaveAs* **CE40EX2**.
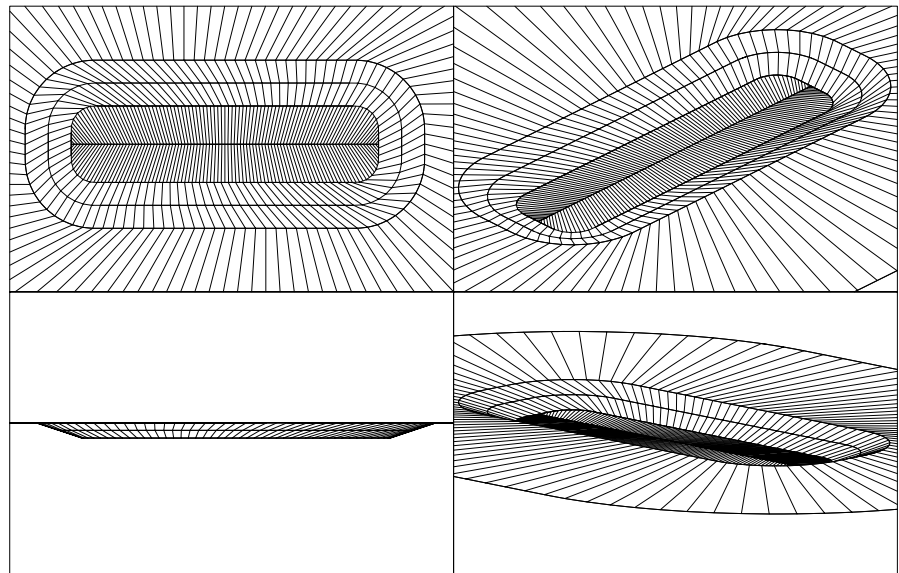
3. Piping Fittings and Valves

Figure CE40-3

Begin a *New* drawing. Create the following pipefittings and valves by using the *Rulesurf* and *Revsurf* commands.

> 8″ to 6″ concentric reducer (*Rulesurf* between a 6″ *Circle* and a 8″ *Circle* with a 8″ distance between them)
>
> 8″ 90° elbow (*Revsurf* with axis of revolution 12″ from center of *Circle*)
>
> 6″ 90° elbow (*Revsurf* with axis of revolution 9″ from center of *Circle*)
>
> 8″ gate valve (two 8″ *Circles* separated by 8″ with a *Point* in the middle—use a *Rulesurf* to connect)
>
> 6″ gate valve (same as the 8″gate valve but with 6″ *Circles* and 6″ separation).
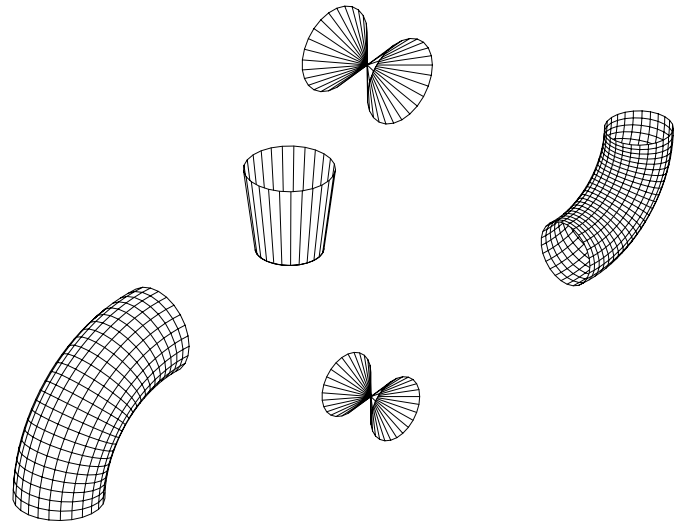
See Figure 40-3 for the final product. *SaveAs* **3DPIPES**.

4. 3-Dimensional Piping Layout

Figure CE40-4

Continue working on the exercise above. Using the **CE37EX1** exercise as a dimensional reference, create a layout of the entire piping assembly as shown in Figure CE40-4. The *Tabsurf* command can be used to generate the straight pipe runs. *Save* your changes to the drawing. Generate a three-dimensional *Vpoint*. *Plot* your drawing *Scaled to Fit* on an A-size sheet.