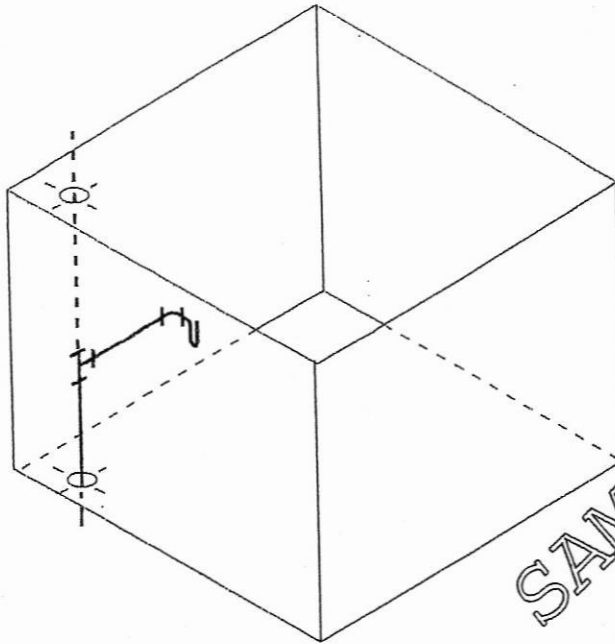
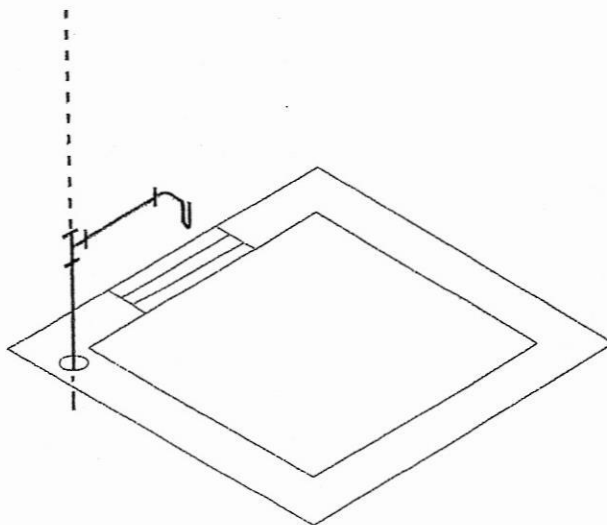


READING ISOMETRIC SKETCHES

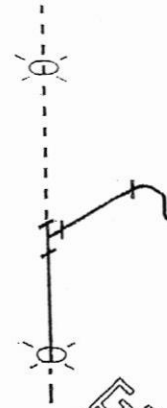
To understand an isometric sketch of a piping system you might start by trying to visualize the inside of a room in which the pipes are located. Try to "look into" this room. The room is drawn in thin lines; the pipe layout is in dark object lines.



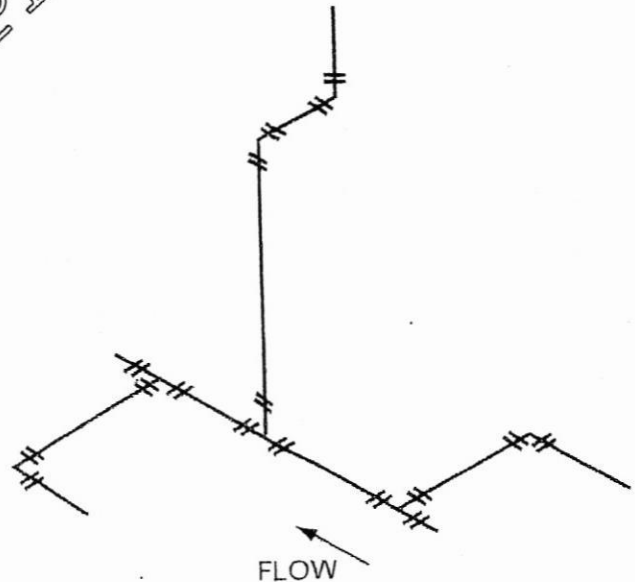
Now look at this drawing which removes the walls from the sketch.



Finally, the isometric sketch is reduced to merely the pipe diagram itself.



Here is an example of another isometric pipe diagram with 90° fittings.



To compare orthographic and isometric drawings, look at the sketches in Figure 2.7. Sketch A is an isometric sketch of the PLAN and ELEVATIONS in Sketch B. You will remember that in an isometric sketch **vertical lines are shown in a vertical position**, and



Section 2 – Layout

horizontal lines are drawn at an angle of 30° to an imaginary horizontal line. You will also remember that an isometric drawing is three dimensional and is more picture-like than an orthographic drawing.

Study the sketches in Figure 2.7 until you understand the relationship between the isometric drawing and the orthographic sketches.

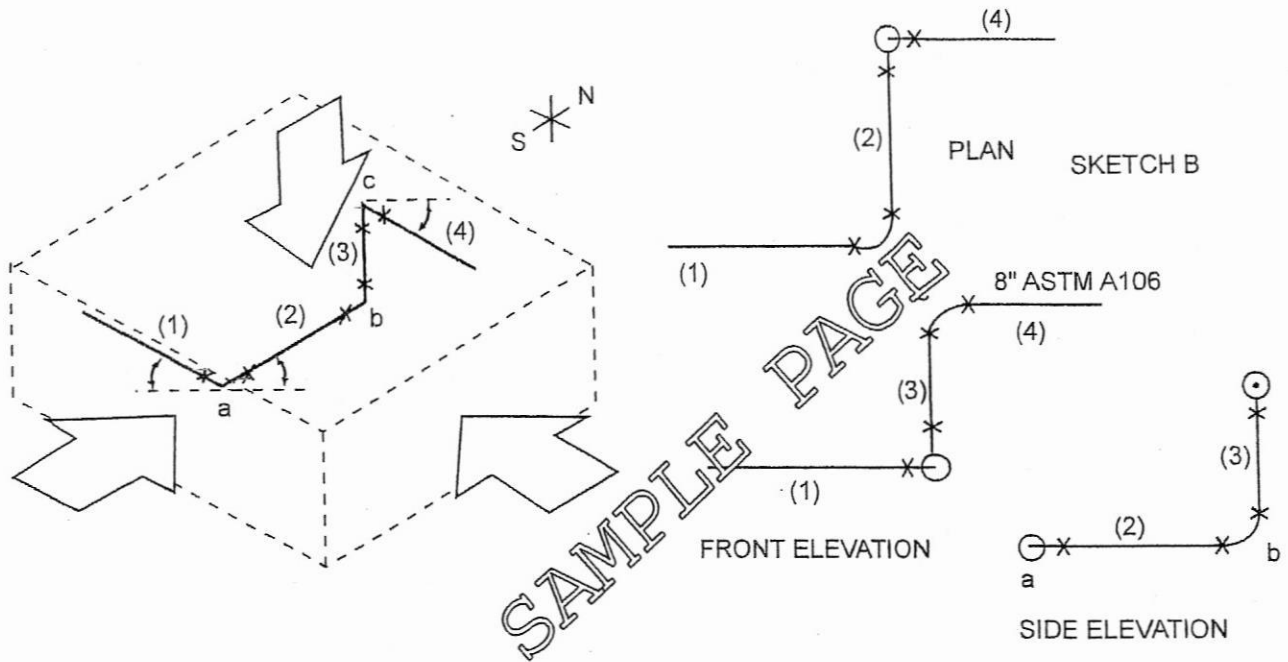


FIGURE 2.7

Exercises on Figure 2.7

What specific details can you learn from these drawings?

- The pipe and the fittings are 8 inch butt welding carbon steel.
- There are four sections of straight pipe.
- The arrangement uses three 90° butt welded elbows.
- Pipe section 3 is the only vertical pipe in the arrangement. (It appears as a vertical pipe in the isometric sketch and in the ELEVATIONS.)
- Pipe sections 1, 2, and 4 are horizontal pipelines.
- Pipe sections 1, 2 and 4 are at a 30° angle to an imaginary horizontal line in the isometric drawing.

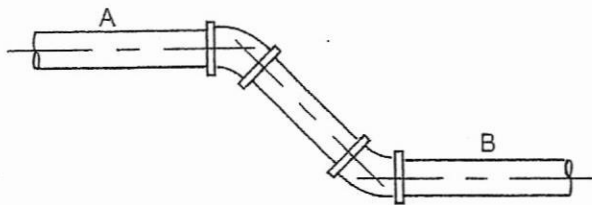
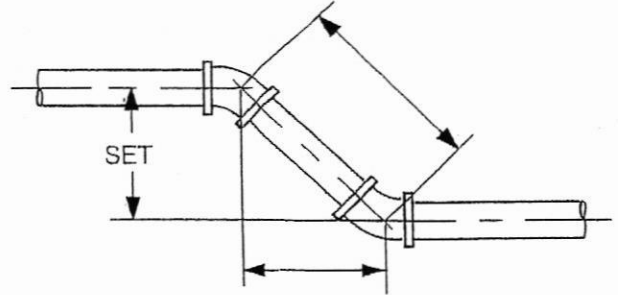
OFFSETS

An Offset is a piping arrangement that includes two **parallel** pipes and two fittings of the same angle. An Offset permits a pipeline to move off course (around an obstruction such as a bema or a joist).

in pipe fitting terms, this is what these names represent: SET refers to the distance between the centerlines of the two parallel **pipes**. These pipes are always a set distance apart.

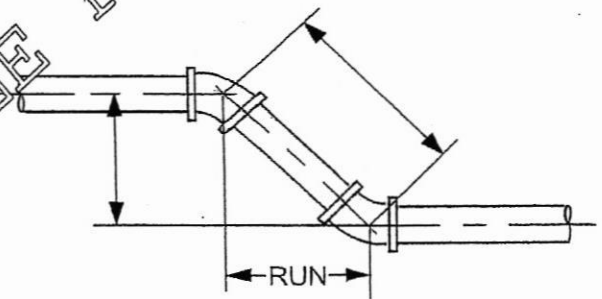
SIMPLE OFFSETS

A simple offset is an offset which has two parallel pipes and two angles of the same degree on the same plane.



RUN refers to the distance between the centerlines of the **fittings**.

The centerlines of pipes A and B are parallel. The angles of the offset are both 45°.



Run, Set, and Travel

All offsets are calculated on the basis of the RIGHT triangle. The three sides of the triangle have designated pipe fitting names. The hypotenuse is called the TRAVEL. The other two sides are called the SET and RUN.

TRAVEL refers to the center-to-center length of the diagonal pipe of the offset.

