Chapter 25

Pictorial Drawing 3

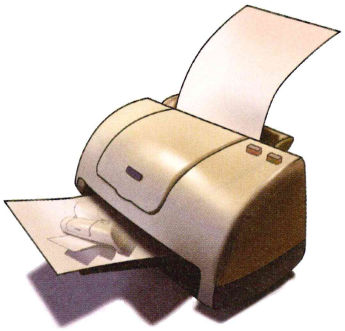
Circles in Isometric Projection

In chapter 14 we used axonometric projection as an efficient means of producing an isometric projection of objects comprising plane surfaces. Now we shall turn our attention to objects which contain circular parts and curved surfaces.

Circles appear elliptical in isometric projection.

Example

The incomplete isometric projection of a **printer** using the axonometric axes method is shown over. The elevation and plan are also shown in their required positions.

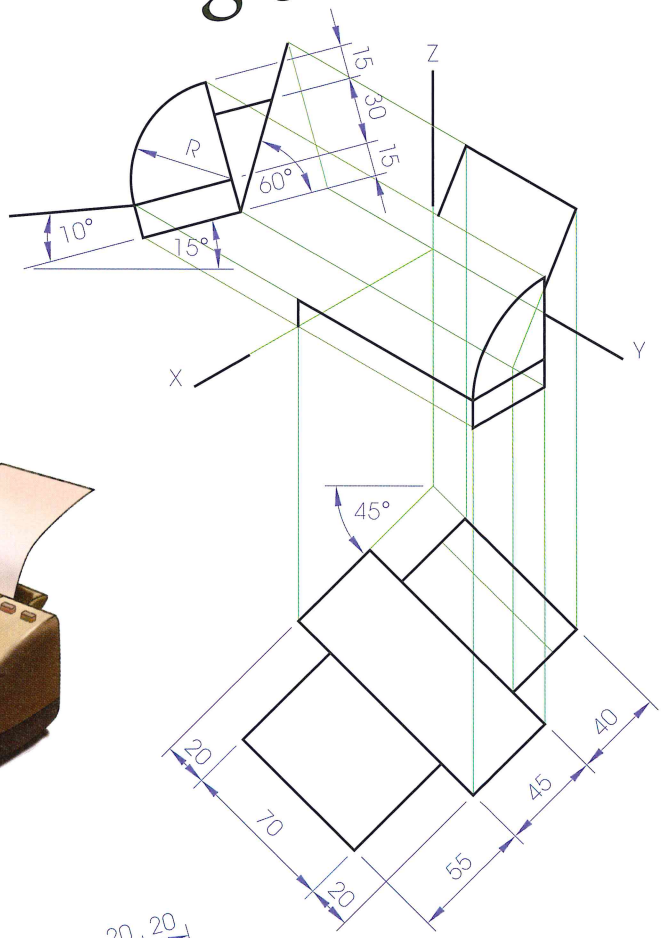


(i) Draw the axonometric axes X, Y and Z.

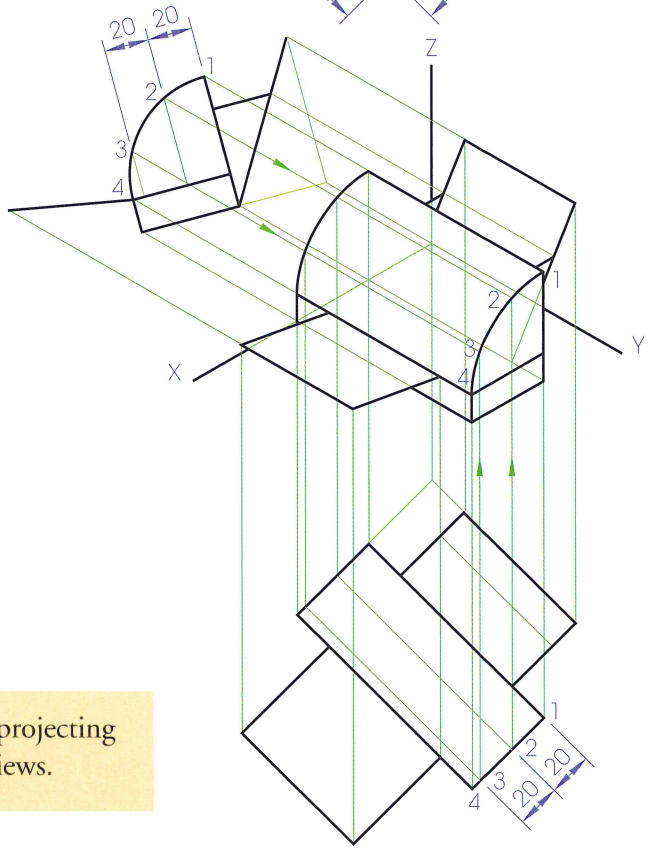
(ii) Draw the plan orientated at 45° as shown.

(iii) Draw the side elevation orientated at 15° as shown.

(iv) Draw the completed axonometric projection.



1. Draw the axes, plan and elevation as shown.
2. Draw the incomplete axonometric projection shown in the normal manner, excluding the curve.
3. Locate two additional points 2 and 3 on the curve in plan as shown over, say offset by 20 mm for convenience.
4. Locate these points in elevation as shown.
5. Now locate points 2 and 3 in the axonometric projection by projecting them from the plan and elevation. Draw a smooth curve through points 1 to 4.
6. Repeat this process for the second curve.
7. Complete the axonometric projection in the normal manner.



A curve can be determined in axonometric projection by projecting corresponding points on the curve from two given views.

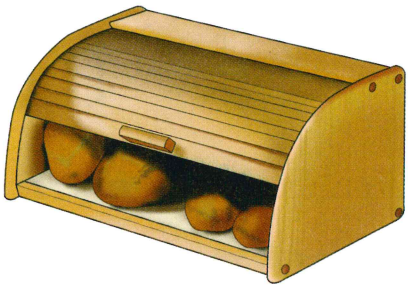
Exercises

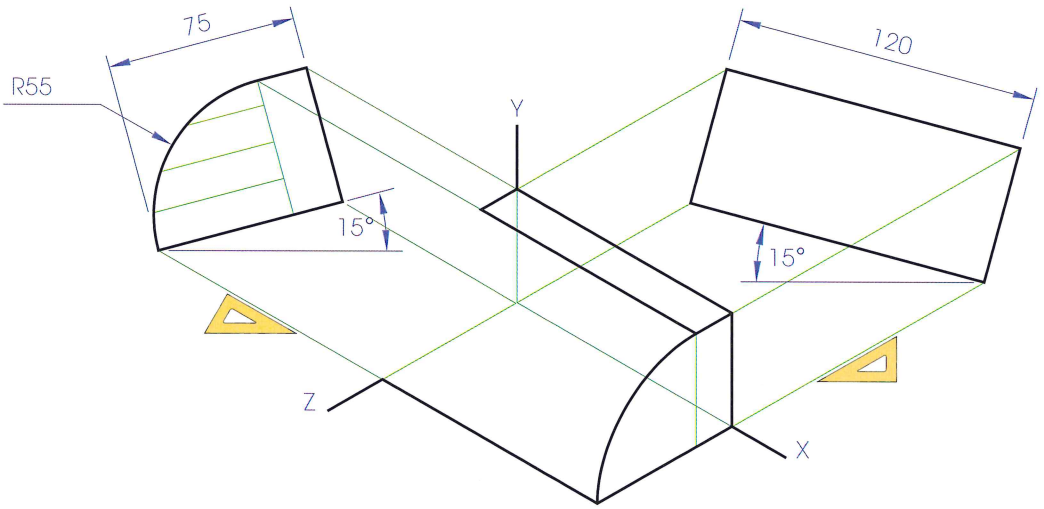
1. The incomplete isometric projection of a **bread bin** using the axonometric axes method is shown below. The front and side elevations are also shown in their required positions.

(i) Draw the axonometric axes X, Y and Z.

(ii) Draw the elevations orientated at 15° as shown.

(iii) Draw the completed axonometric projection.





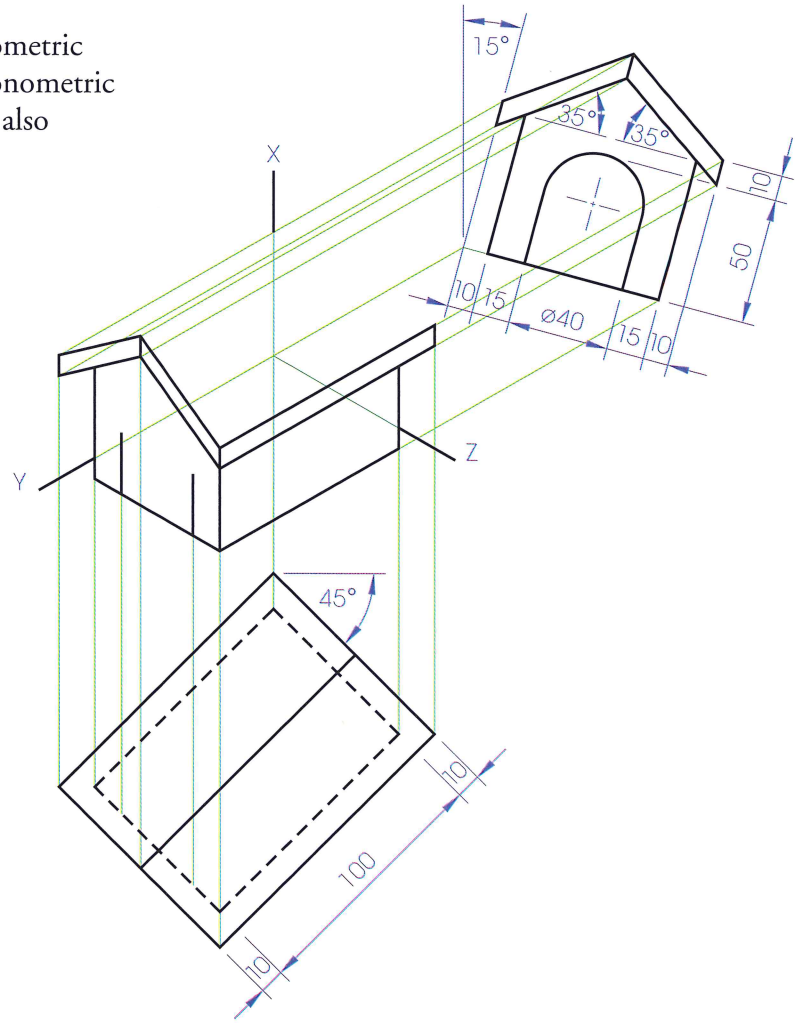
2. The figure over shows the incomplete isometric projection of a **dog kennel** using the axonometric axes method. The elevation and plan are also shown in their required positions.

(i) Draw the axonometric axes X, Y and Z.

(ii) Draw the plan orientated at 45° as shown.

(iii) Draw the elevation orientated at 15° as shown.

(iv) Draw the completed axonometric projection.



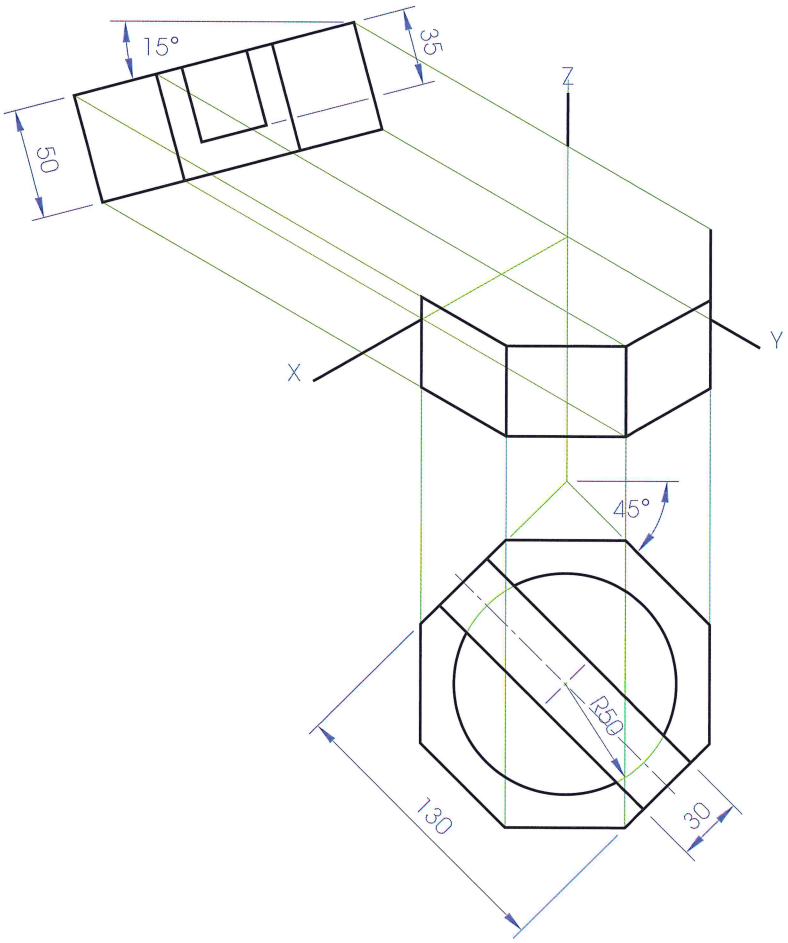
3. The incomplete isometric projection of a **Celebrations box** using the axonometric axes method is shown over. The box is based on a *regular octagonal prism*. The end elevation and plan are also shown in their required positions.

(i) Draw the axonometric axes X, Y and Z.

(ii) Draw the plan orientated at 45° as shown.

(iii) Draw the elevation orientated at 15° as shown.

(iv) Draw the completed axonometric projection.



4. The figure below shows the incomplete isometric projection of a **bird feeder** using the axonometric axes method. The front and side elevations, which are identical, are also shown in their required positions.

(i) Draw the axonometric axes X, Y and Z.

(ii) Draw the side elevations orientated at 15° as shown.

(iii) Draw the completed axonometric projection.