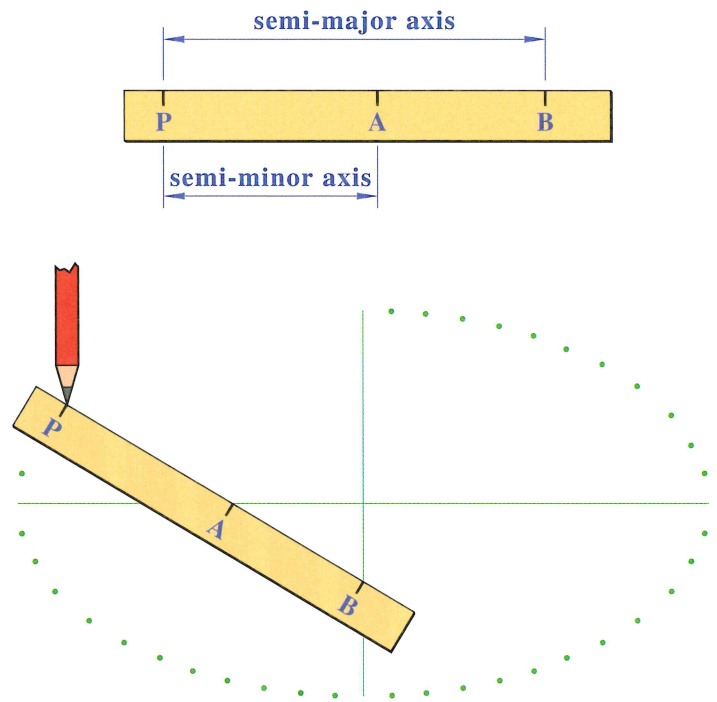


## Drawing an Ellipse using the Trammel Method

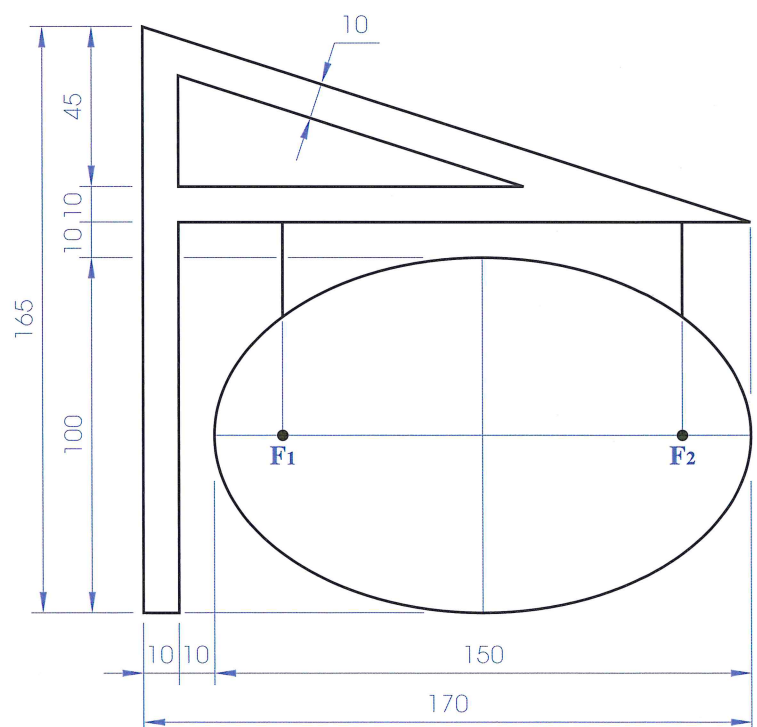
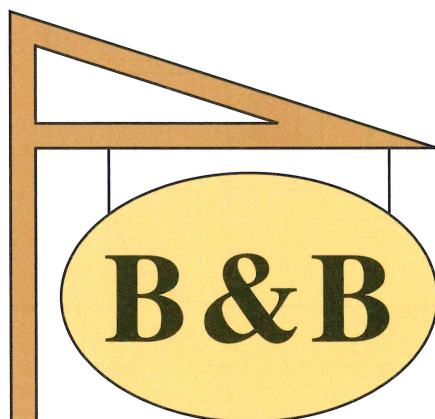
1. Draw the major and minor axes.
2. Cut a strip of paper with a straight edge to use as a trammel. Mark a point P about 10 mm from the edge of the trammel as shown. From this point mark a point A such that PA is equal to half the minor axis. Locate another point B such that PB is equal to half the major axis.
3. Place the trammel so that A is on the major axis and B is on the minor axis. Then, mark the position of P with a pencil.
4. Move the trammel around, keeping A on the major axis and B on the minor axis as shown. Mark the position of P each time.
5. When enough points have been located, draw a smooth curve through them.
6. Include the trammel with your drawing.



### Exercises

1. The figure below shows a design for a **Bed and Breakfast** sign in the shape of an **ellipse**. The **ellipse** has a **major axis** of length 150 mm and a **minor axis** of length 100 mm.  $F_1$  and  $F_2$  are the focal points of the curve.

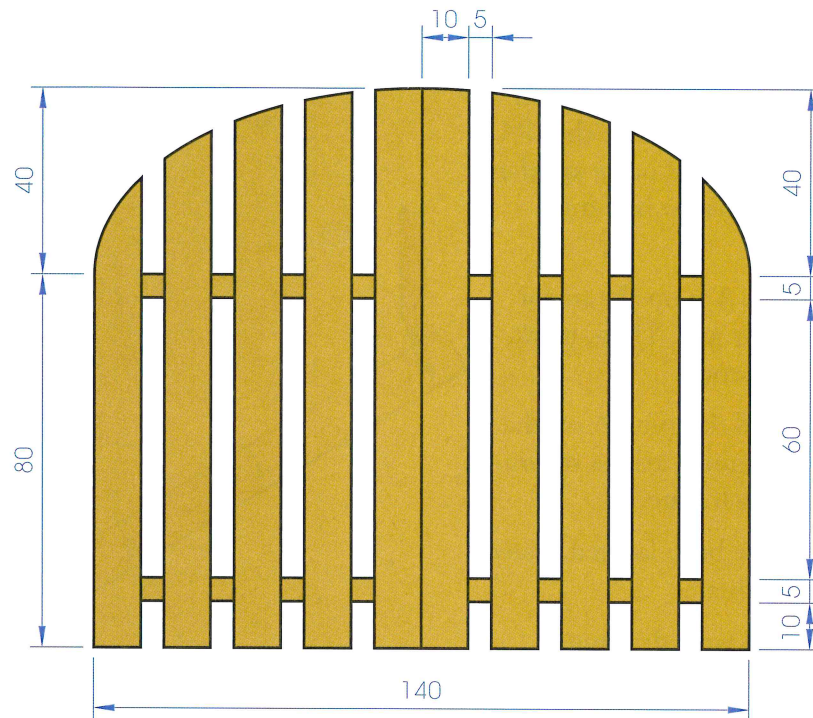
Draw the given design full-size, using a **trammel** to construct the ellipse.



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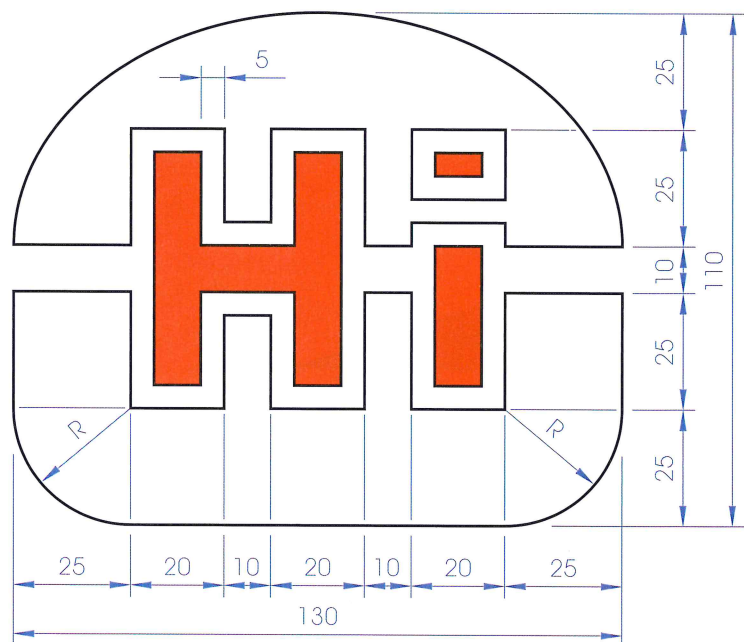
2. The figure below shows a drawing of **entrance gates**. The **semi-ellipse** has a **major axis** of length 140 mm and a **minor axis** of length 80 mm. The boards are 5 mm apart as shown.

Make a drawing of the gates, using a **trammel** to construct the **semi-ellipse**.



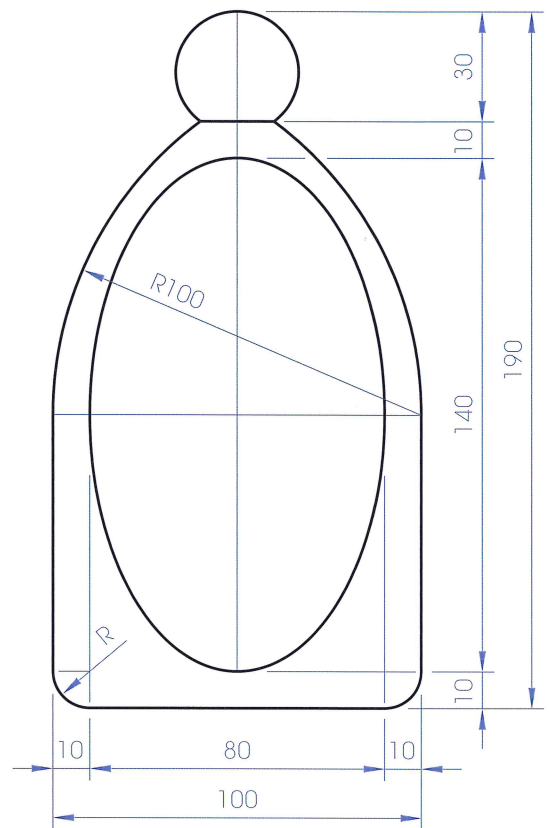
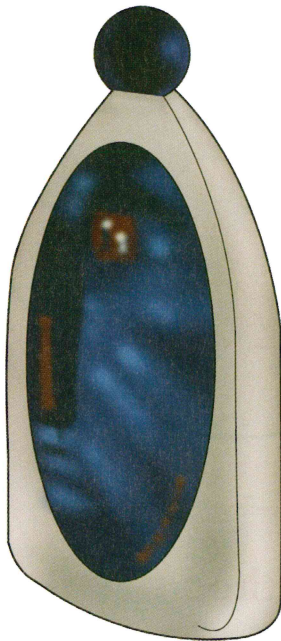
3. A logo for the **Hamburger Inn** based on a **semi-ellipse** having a **major axis** of 130 mm and a **minor axis** of 100 mm is shown in the figure below.

Draw the given logo full-size. Don't forget to include the **trammel** with your drawing.



4. The figure across shows the design for a **shampoo bottle**. It has a label in the shape of an **ellipse** attached. The **major axis** is 140 mm and the **minor axis** is 80 mm.

Draw the given design, showing all construction lines. Use a **trammel** to construct the ellipse.



5. A design for a **wine glass** based on a **semi-ellipse** is shown below. The **major axis** of the ellipse is 160 mm long and the **minor axis** is 90 mm long.

Draw the given design full-size using a **trammel** to construct the ellipse.

