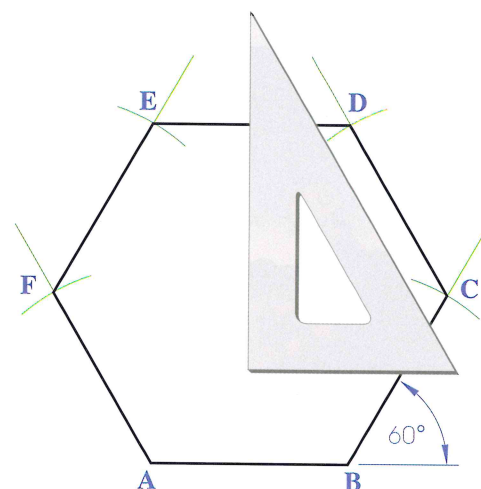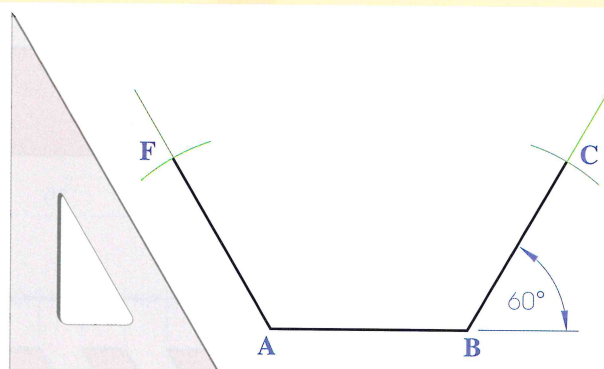# Constructing a Regular Hexagon and a Regular Octagon

Example 1
Construct a **regular hexagon** of side 70 mm.

A **regular hexagon** has six equal sides and six equal angles.
The **exterior angle** for a regular hexagon is 360° ÷ 6 = 60°.

1. Draw the base AB of length 70 mm.

2. Using the 30°/60° set square, draw 60° lines from A and B. Mark off the two sides of length 70 mm from A and B, respectively.

3. Complete the hexagon using the 30°/60° set square to draw the two inclined sides of length 70 mm and the ruler to draw the horizontal side.

Example 2
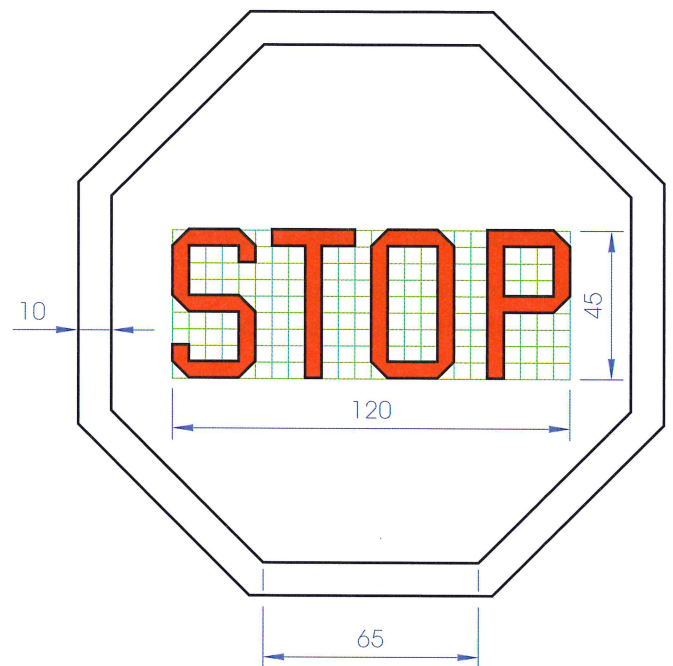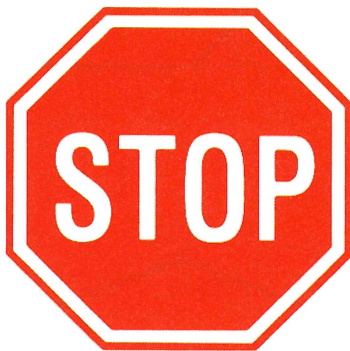Construct a **regular octagon** of side 55 mm.

A **regular octagon** has eight equal sides and eight equal angles.
The **exterior angle** for a regular octagon is 360° ÷ 8 = 45°.
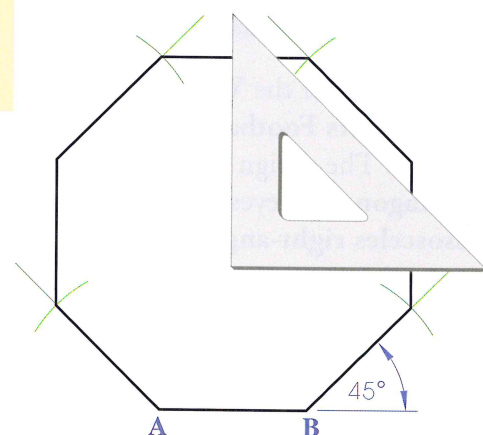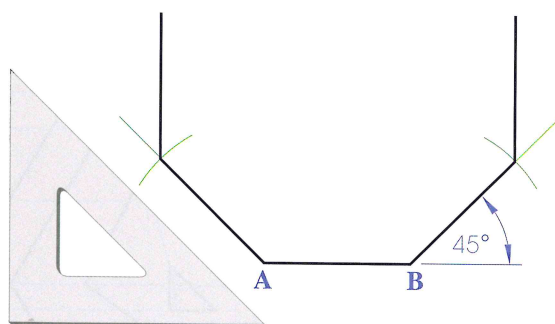
1. Draw the base AB of length 55 mm.
2. Using the 45° set square, draw 45° lines from A and B. Mark off the two sides of length 55 mm.
3. Draw the two vertical sides of length 55 mm.
4. Complete the octagon using the 45° set square to draw the two inclined sides of length 55 mm and the ruler to draw the horizontal side.

4. The outline of the **Stop road sign** is a **regular octagon**. A drawing of the road sign is shown in the figure below. The inner octagon has a side of length 65 mm and the outer octagon is offset a distance of 10 mm.

Make a copy of this drawing to the sizes given. Include the letters, which are drawn on a grid of 5 mm squares, in your drawing. Position the letters in the centre of the octagon.

5. The **MG Motors** emblem is based on a **regular octagon**. Draw the emblem to the sizes given.

Begin your work by drawing the octagon of side 55 mm in which the letters M and G are inscribed. Start the drawing at point A.