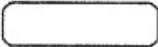



EXERCISE 30

Question 1.

State, whether true or false :

- (i) The letter B has one line of symmetry.
- (ii) The letter F has no line of symmetry.
- (iii) The letter O has only two lines of symmetry.
- (iv) The figure  has no line of symmetry.
- (v) The letter N has one line of symmetry.
- (vi) The figure  has one line of symmetry.
- (vii) The letter D has only one line of symmetry.
- (viii) A scalene triangle has three lines of symmetry.

Solution:

(If both the semi-circles of B are equal)

- (i) True
- (ii) True
- (iii) False
- (iv) False
- (v) False
- (vi) True
- (vii) True
- (viii) False.

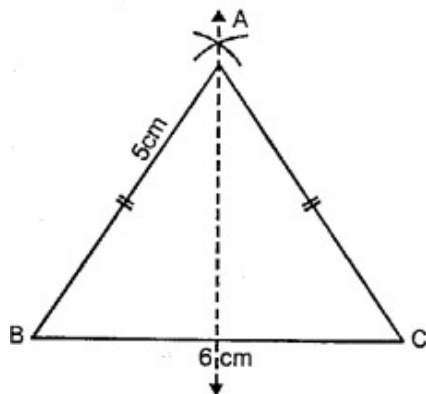
Question 2.

Construct a triangle ABC, in which $AB = AC = 5$ cm and $BC = 6$ cm. Draw all its lines of Symmetry.

Solution:

Steps of Construction :

- (i) Draw a line $BC = 6$ cm.



(ii) With B as centre and radius 5 cm draw

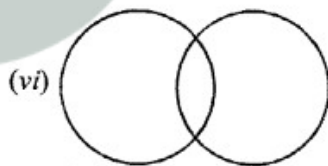
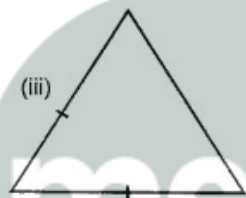
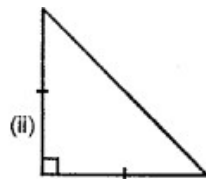
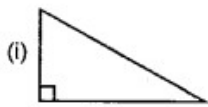
(iii) With C as centre and radius 5 cm draw an arc which cuts the previous arc at a.

(iv) Join AB and AC.

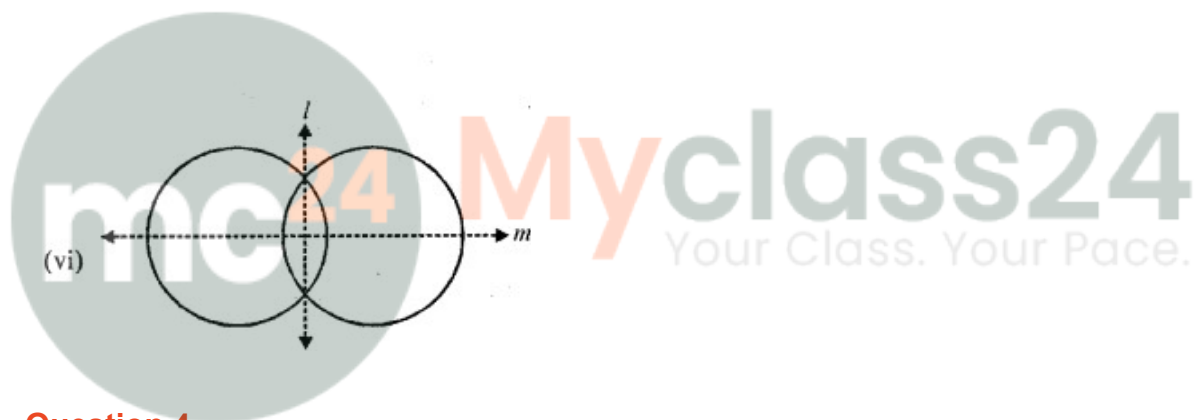
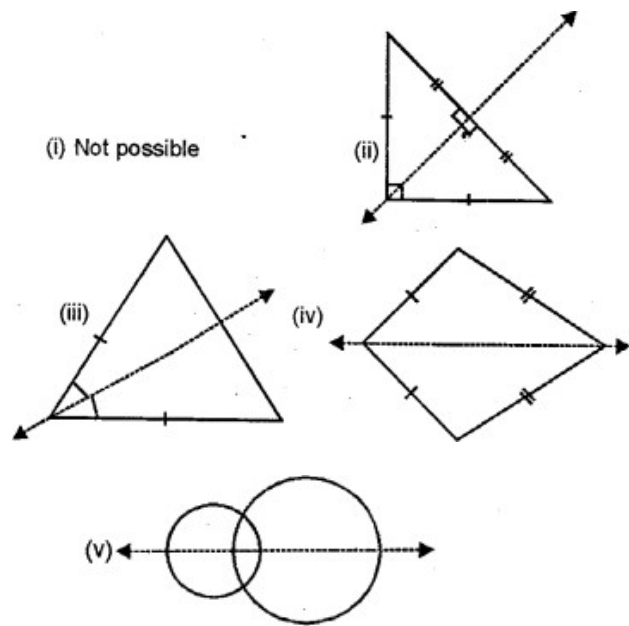
(v) $\triangle ABC$ is the required triangle. A line of symmetry is shown in the figure.

Question 3.

Examine each of the following figures carefully, draw line(s) of symmetry in which ever figure possible :



Solution:



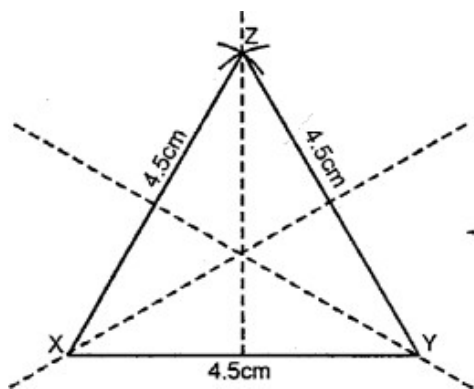
Question 4.

Construct a triangle XYZ, in which $XY = YZ = ZX = 4.5$ cm. Draw all its lines of symmetry.

Solution:

Steps of Construction :

(i) Draw line $XY = 4.5$ cm



- (ii) With X as a centre and radius 4.5 cm draw an arc at Z.
 - (iii) With Y as a centre and radius 4.5 cm draw an arc which cuts the previous arc at Z.
 - (iv) Join XZ and YZ.
- $\triangle XYZ$ is the required triangle and lines of symmetries are shown in the figure.

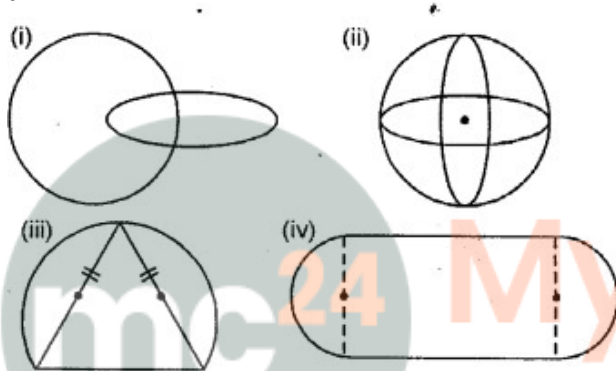
Question 5.

Construct a triangle ABC, in which $AB = BC = 4$ cm and $\angle ABC = 60^\circ$. Draw all its lines of symmetry.

Solution:

Steps of Construction :

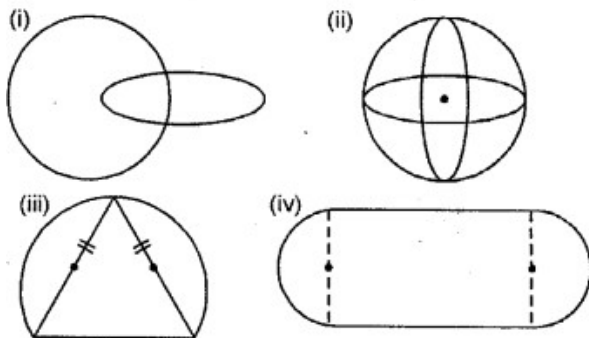
- (i) Draw a line $AB = 4$ cm.



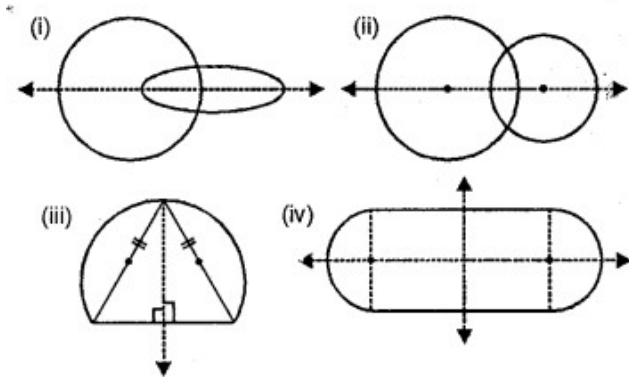
- (ii) At B draw an angle of 60° with the help of compass.
 - (iii) With B as centre and radius upon cut $BC = 4$ cm.
 - (iv) Join AC.
- $\triangle ABC$ is the required triangle and line of symmetry is shown in centre.

Question 6.

Draw the line(s) of symmetry for each figure drawn below :

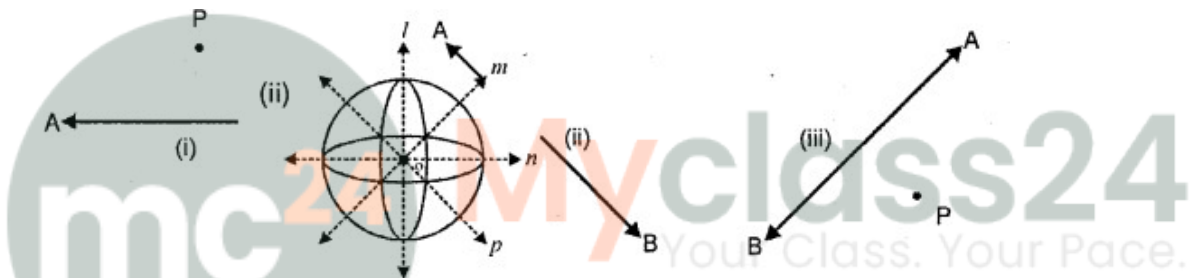


Solution:

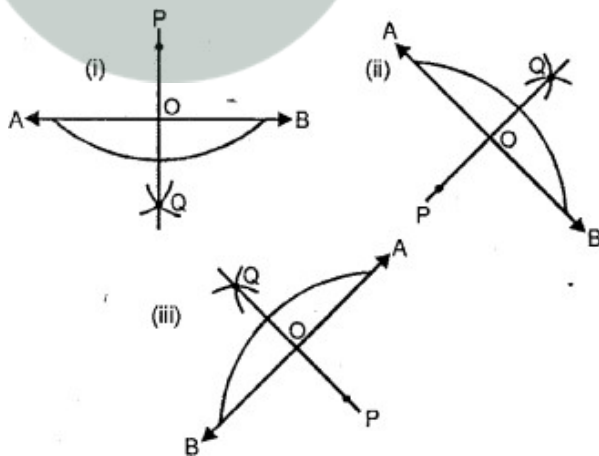


Question 7.

In each of the following case, construct a point that is symmetric to the given point P with respect to the given line AB.



Solution:



(i) Draw PQ perpendicular to AB from PO produced cut $OQ = OP$.

Point Q is symmetric to the given point P with respect to the given line AB.

(ii) Draw PO perpendicular to AB from P and produce PO to Q such that $OQ = PO$.

Point Q is symmetric to the given point P with respect to the given line AB.

(iii) Draw PQ perpendicular to AB from PO produced cut $OQ = OP$.

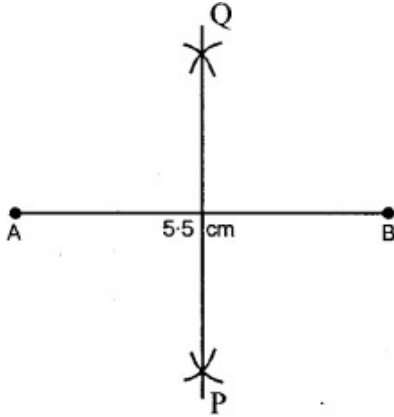
Point Q is symmetric to the given point P with respect to the given line AB.

Question 8.

Mark two points A and B 5.5 cm apart. Draw a line PQ so that A and B are symmetric with respect to the line PQ. Give a special name to line PQ.

Solution:

Steps of Construction :



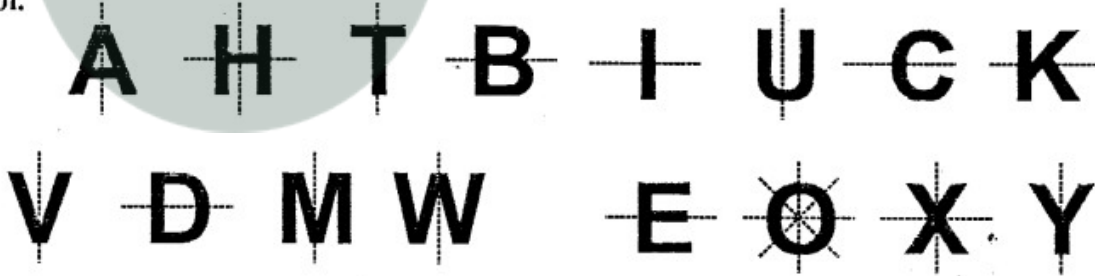
Take points A and B 5.5 cm apart draw perpendicular bisect of the line segment AB. The perpendicular bisector PQ is the required line of symmetry with respect to A and B. PQ is the perpendicular bisector of AB.

Question 9.

For each letter of the English alphabet, draw the maximum possible number of lines of symmetry.

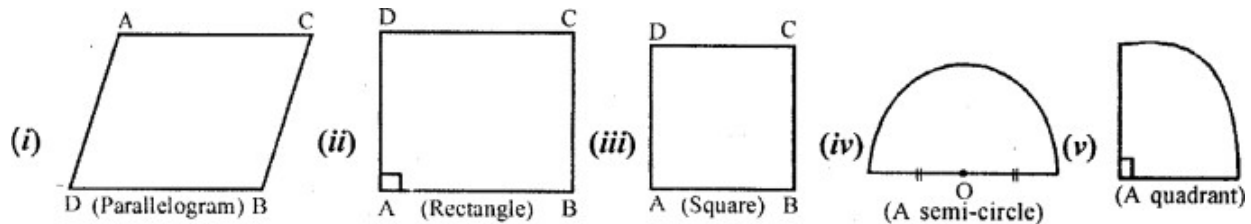
Solution:

iol.



Question 10.

Draw all the possible lines of symmetry for each figure given below :

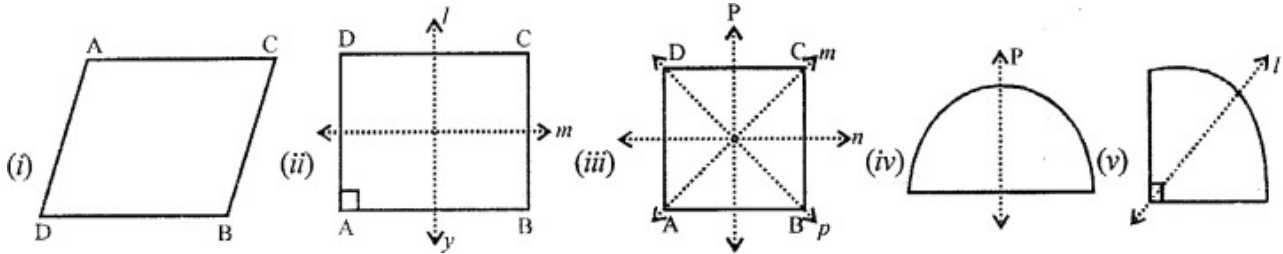


Solution:

The line or lines of symmetry of tile given figure are drawn as given below :

(i) A parallelogram has no line of symmetry.

- (ii) A rectangle has two lines of symmetry.
- (iii) A square has four lines of symmetry.



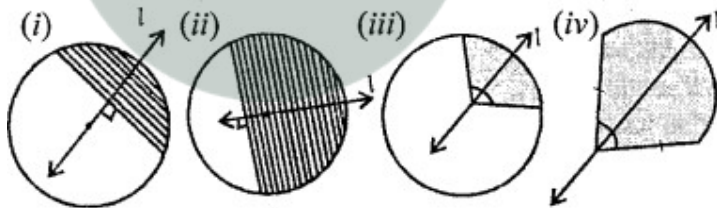
- (iv) A semicircle has one line of symmetry.
- (v) A quadrant has one line of symmetry.

Question 11.

For each shaded portion given below, draw all the possible lines of symmetry :

Solution:

The shaded portion of each figure given has the line or lines of symmetry as given below



- (i) A minor segment has one line of symmetry.
- (ii) A major segment has one line of symmetry.
- (iii) quadrant has one line of symmetry.
- (iv) The given figure has one line of symmetry.