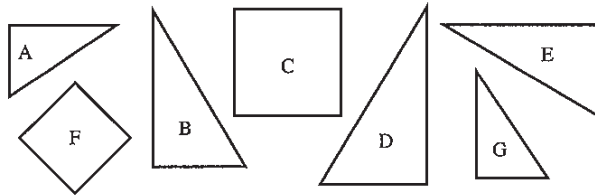


Congruence

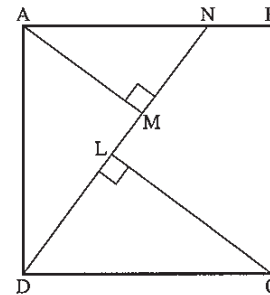
Two plane figures are congruent if one fits exactly on the other. They must be the same size and the same shape.

Exercise 7

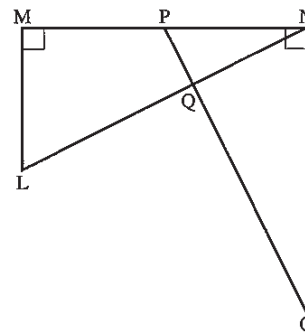
1. Identify pairs of congruent shapes below.



2. Triangle LMN is isosceles with $LM = LN$; X and Y are points on LM, LN respectively such that $LX = LY$. Prove that triangles LMY and LNX are congruent.
3. ABCD is a quadrilateral and a line through A parallel to BC meets DC at X. If $\widehat{D} = \widehat{C}$, prove that $\triangle ADX$ is isosceles.
4. In the diagram, N lies on a side of the square ABCD, AM and LC are perpendicular to DN. Prove that:
 (a) $\widehat{ADN} = \widehat{LCD}$ (b) $AM = LD$



5. Points L and M on the side YZ of a triangle XYZ are drawn so that L is between Y and M. Given that $XY = XZ$ and $\widehat{YXL} = \widehat{MXZ}$, prove that $YL = MZ$.
6. Squares AMNB and AOPC are drawn on the sides of triangle ABC, so that they lie outside the triangle. Prove that $MC = OB$.
7. In the diagram, $\widehat{LMN} = \widehat{ONM} = 90^\circ$. P is the mid-point of MN, $MN = 2ML$ and $MN = NO$. Prove that:
 (a) the triangles MNL and NOP are congruent
 (b) $\widehat{OPN} = \widehat{LNO}$
 (c) $\widehat{LQO} = 90^\circ$



8. PQRS is a parallelogram in which the bisectors of the angles P and Q meet at X. Prove that the angle PXQ is a right angle.