

16. Construct a scalene triangle ABC , and on the side of BC remote from A , describe a triangle DBC with $DB=AC$, and $DC=AB$. Join AD . How do AD and BC appear to divide each other?

Repeat the construction several times with different pairs of triangles, and note whether the same peculiarity of division occurs in each case.

17. Construct a scalene triangle ABC . On the other side of BC construct DBC with $DB=AB$, and $DC=AC$; on the other side of AC construct EAC with $CE=CB$, and $AE=AB$; on the other side of AB construct FAB with $BF=BC$, and $AF=AC$. Join AD , BE , CF . What lines in the figure are bisected? What triangles are isosceles? What angles are right angles? How many right-angled triangles are there?

18. Construct a triangle ABC ($BC=47$, $CA=40$, $AB=27$ millimetres). On the other side of BC construct DBC with $DB=AC$, and $DC=AB$; on the other side of AC construct EAC with $EC=AB$, and $EA=BC$; on the other side of AB construct FAB with $FA=BC$, and $FB=AC$. Join AD , BE , CF . What are the positions of DC , and CE with respect to each other; also EA , AF ; and FB , BD ?

What lines in the figure are bisected? Has any line the third part cut off? Has any line the sixth?

19. If two sides of a triangle are unequal, the angles opposite to them are unequal. (Suppose the angles equal and prove an absurdity.)

20. If two angles of a triangle are unequal, the sides opposite to them are unequal.