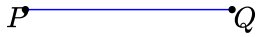


compass and straightedge construction of regular triangle

One can construct a [regular triangle](#) with sides of a given length s using [compass](#) and straightedge as follows:

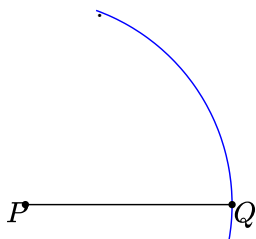
1.

Draw a [line segment](#) of length s . Label its [endpoints](#) P and Q .



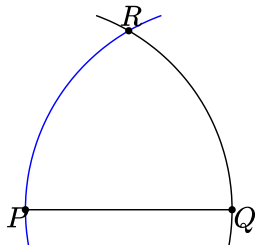
2.

Draw an arc of the circle with center P and radius $\overline{PQ}$.



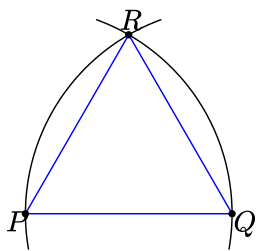
3.

Draw an arc of the circle with center Q and radius $\overline{PQ}$ to find a point R where it [intersects](#) the arc from the previous step.



4.

Draw the regular triangle $\triangle PQR$.



This construction is justified by the following:

-

$\overline{PQ} \cong \overline{PR}$ since they are both radii of the circle from step 2;

-

$\overline{PQ} \cong \overline{QR}$ since they are both radii of the circle from step 3;

-

Thus, $\triangle PQR$ is an [equilateral triangle](#);