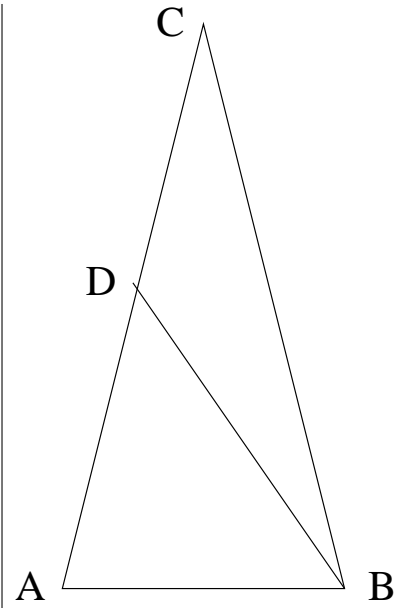
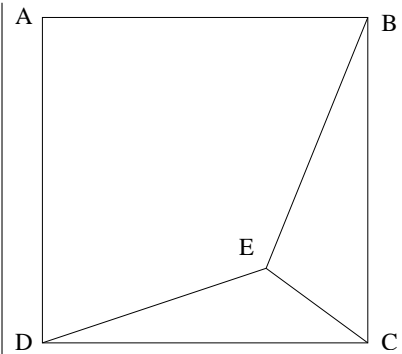


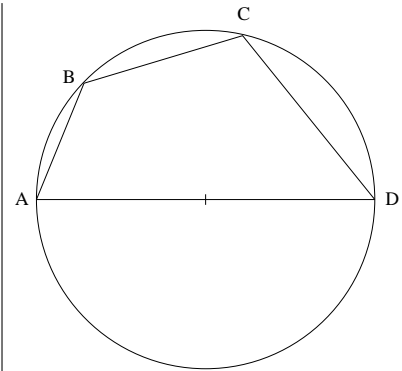
1. In $\triangle ABC$, $m(\angle BAC) = 80^\circ$, $m(\angle ACB) = 20^\circ$ and $CD = AB$. What is $m(\angle CBD)$?



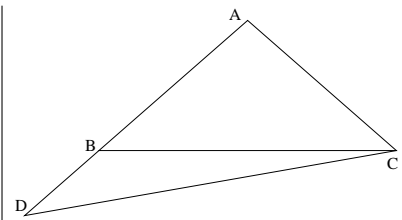
2. Point E is inside square $ABCD$ with $BE = \sqrt{5}$, $CE = 1$, and $DE = \sqrt{3}$. What is $m(\angle DEC)$?



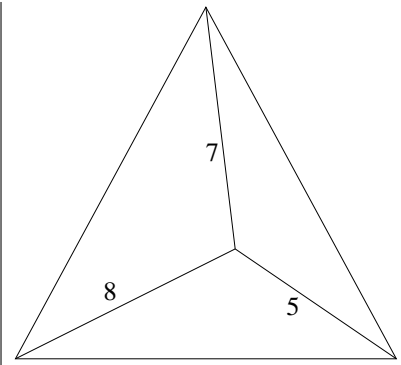
3. A quadrilateral $ABCD$ is inscribed in a circle with AD a diameter, $AB = 3$, $BC = 4$, and $CD = 5$. What is the diameter of the circle?



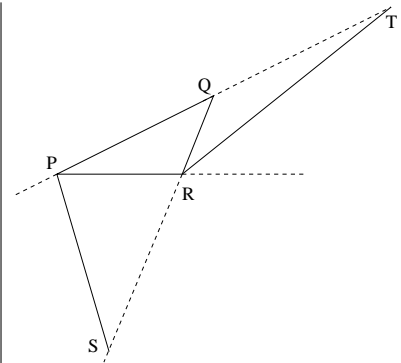
4. In an isosceles triangle $\triangle ABC$, $m(\angle B) = m(\angle C) = 40^\circ$, AB is extended past B to D so that $AD = BC$. What is $m(\angle BCD)$?



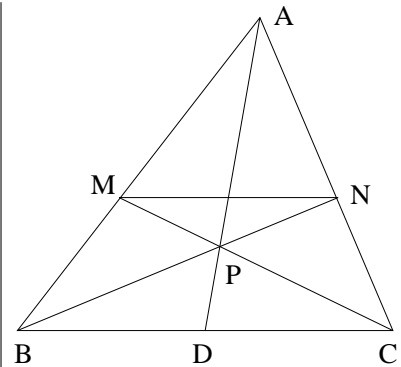
5. An interior point in an equilateral triangle is located at distances of 5, 7 and 8 from the three vertices. What is the (common) length of the sides?



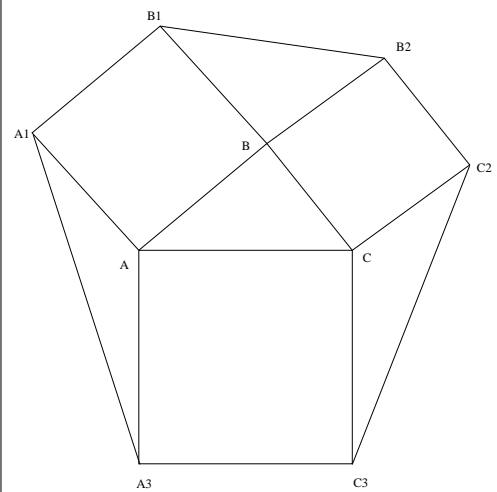
6. In $\triangle PQR$, $QR < PR < PQ$ so that the exterior angle bisector through P intersects ray \overrightarrow{QR} at point S , and the exterior angle bisector at R intersects ray \overrightarrow{PQ} at point T , as shown on the right. Given that $PR = PS = RT$, determine, with proof, the measure of $\angle PRQ$.



7. Let AD be the median of $\triangle ABC$. Let P be an arbitrary point on AD . If the rays \overrightarrow{CP} and \overrightarrow{BP} intersect AC and AB at N and M respectively, show that MN is parallel to BC .



8. Let $\square ABA_1B_1$, $\square BCB_2C_2$ and $\square ACA_3C_3$ be squares that are attached to the outside a triangle $\triangle ABC$. If the lengths of the segments $\overline{B_1B_2}$, $\overline{C_2C_3}$ and $\overline{A_3A_1}$ are given. How can the sides of the triangle $\triangle ABC$ be determined?



9. The rectangle $\square ABCD$ is the union of three squares of equal size. Determine the sum of three angles $\angle AEB + \angle AFB + \angle ACB$.

