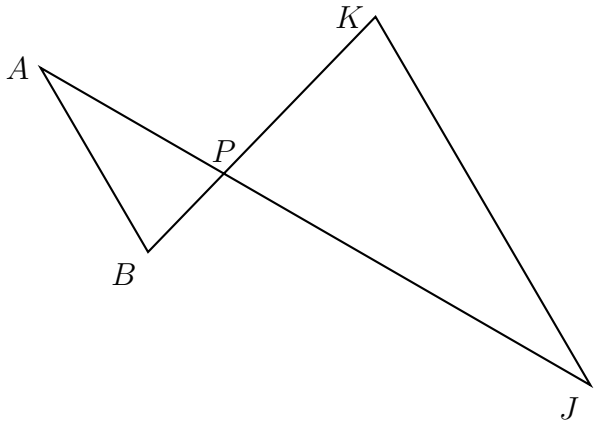
7.3 Homework: Angle-angle theorem of similar triangles

1. Two triangles are shown with P the intersection of $\overline{AJ}$ and $\overline{BK}$.

   (a) Justify $\angle APB \cong \angle JPK$.

   (b) What angle must be congruent to $\angle B$ to prove $\triangle ABP \sim \triangle JKP$ by *angle-angle similarity*?

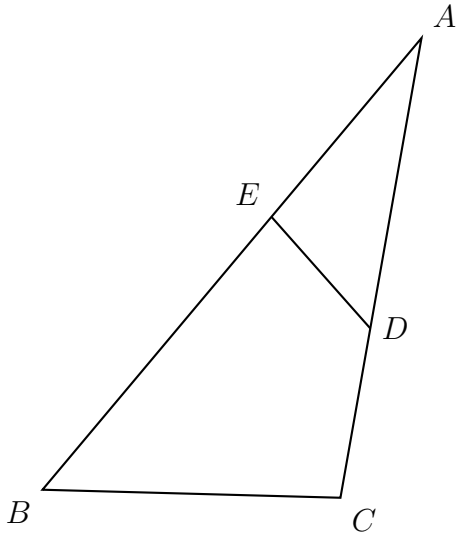


2. Given $\triangle PQR \sim \triangle STU$, $m\angle P = 37°$, and $m\angle T = 46°$. Find $m\angle Q$.

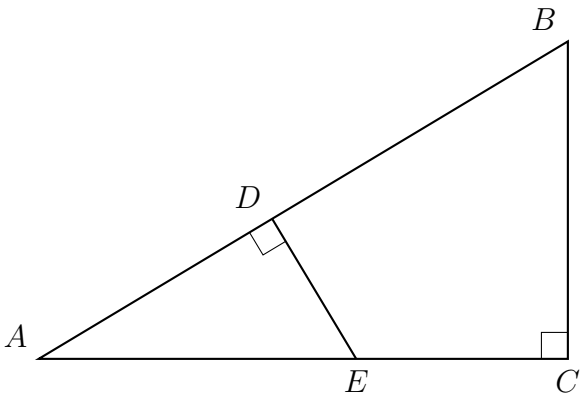
3. The diagram below shows $\triangle ABC$, with $\overline{AEB}$ and $\overline{ADC}$.

   (a) Justify $\angle BAC \cong \angle DAE$.

   (b) What angle must be congruent to $\angle AED$ to prove $\triangle ABC \sim \triangle ADE$ by *angle-angle similarity*?

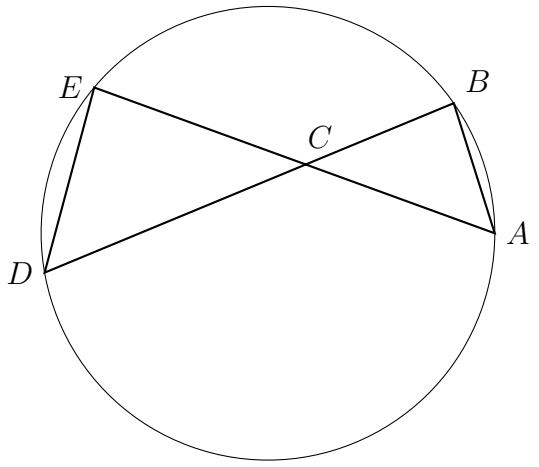


4. In $\triangle ABC$ shown below, $\angle ACB$ is a right angle, E is a point on $\overline{AC}$, and $\overline{ED}$ is drawn perpendicular to hypontenuse $\overline{AB}$.



If $AB = 9$, $BC = 6$, and $DE = 4$, what is the length of $\overline{AE}$?

5. In the diagram below, the chords $\overline{AE}$ and $\overline{BD}$ intersect at C. Given $AC = 6$, $BC = 4$, and $EC = 7$.



(a) What angle corresponds with $\angle D$?

(b) Complete the similarity statement: $\triangle ABC \sim$

(c) Determine the length of $\overline{CD}$.