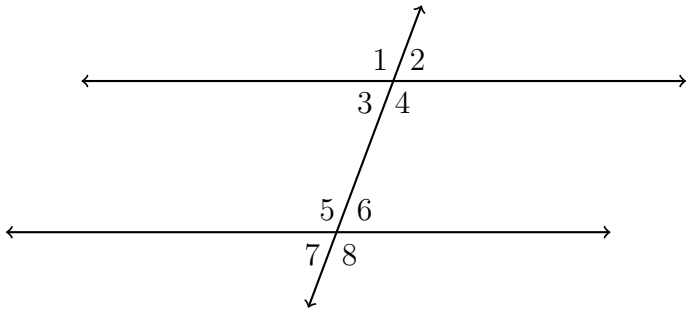
Transversals and parallel lines

1. Corresponding angles
2. Alternate interior angles

1. Given two parallel lines and a transversal, as shown. Apply the theorem "If a transversal intersects two parallel lines, then corresponding angles are congruent."



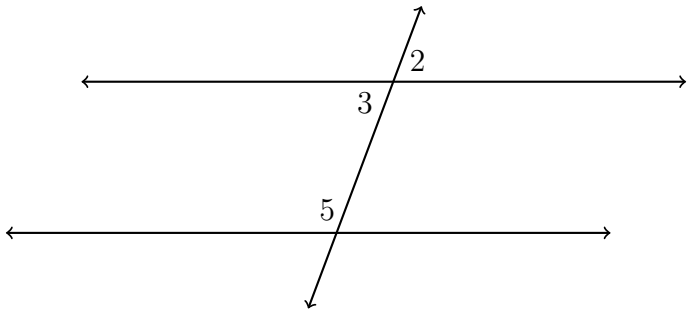
   (a) State the angle corresponding with $\angle 8$.

   (b) Given $m\angle 6 = 81°$ and $m\angle 2 = 3x°$. Find x.

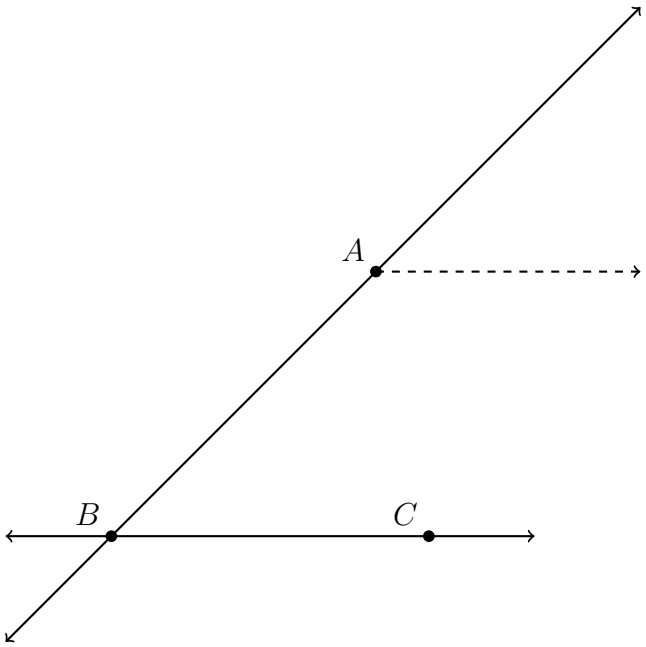
   (c) Given $m\angle 5 = 99°$. Find $m\angle 3$.

   (d) In a proof, what reason would justify $\angle 4 \cong \angle 5$? _____

2. Given two parallel lines and a transversal, as shown. $m\angle 2 = 5x$ and $m\angle 5 = 6x + 15$. Find $m\angle 5$.



3. Spicy: Construct a duplicate of $\angle ABC$, with A as the vertex and with one leg parallel to $\overleftrightarrow{BC}$, as shown by the dotted line. (Leave all construction marks.)



Explain why the constructed leg is parallel to $\overleftrightarrow{BC}$.