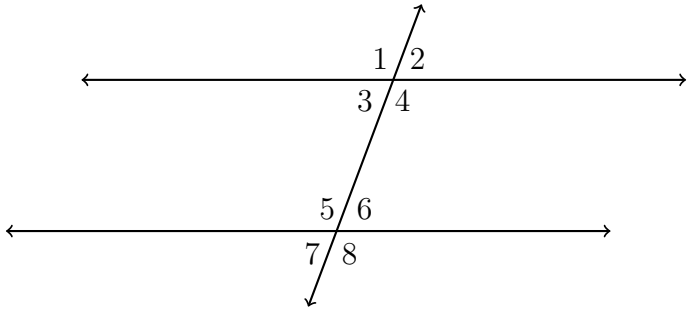
Part 1, Principles of Geometry: Angle Measures & Relationships

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."



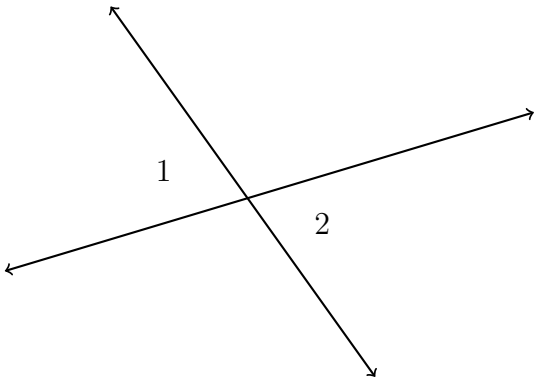
   (a) State the angle corresponding with $\angle 2$.

   (b) Given $m\angle 8 = 115°$ and $m\angle 4 = 5x°$. Find x.

   (c) Given $m\angle 7 = 65°$. Find $m\angle 2$.

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

2. Given two vertical angles, $m\angle 1 = 5x + 9$, $m\angle 2 = 6x - 1$. Find $m\angle 1$.
   For full credit, check by comparing to $m\angle 2$.



3. Express the result to the nearest thousandth.

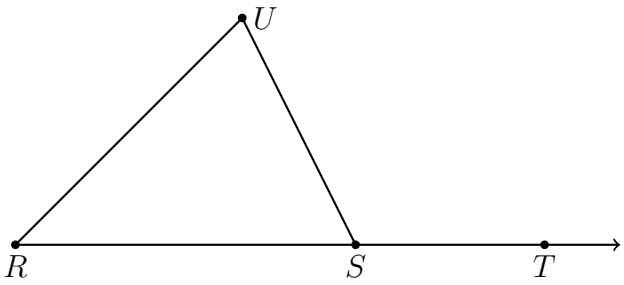
   (a) $\sin 35° =$

   (b) $\tan 70° =$

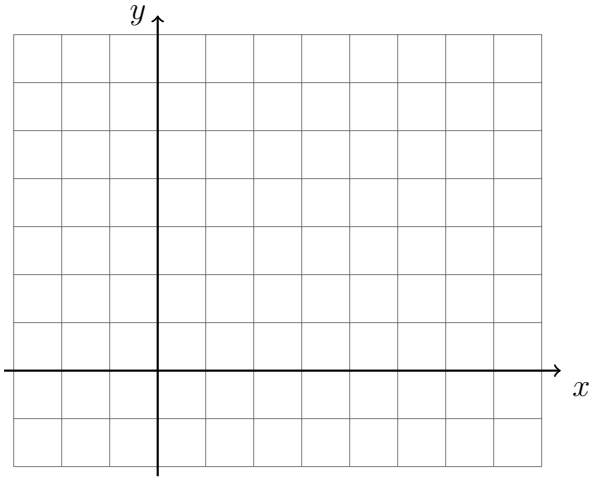
   (c) $\sin 78° =$

   (d) $\cos 12° =$

4. Given $m\angle R = 48$ and $m\angle UST = 110$. Find $m\angle U$.



5. On the graph below, draw $\overline{AB}$, with $A(5, 3)$ and $B(-1, -3)$, labeling the end points. Determine and state the coordinates of the midpoint M of $\overline{AB}$ and mark and label it on the graph.



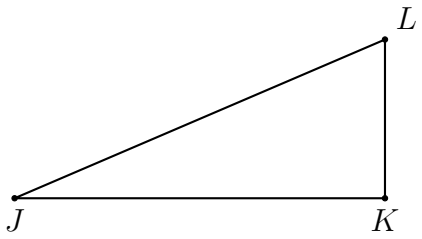
6. In a proof, each of the following statements are written. Write down the reason that would justify each step.

   (a) $\overline{PQ} \cong \overline{PQ}$ _____ property

   (b) $PQ + RS = QR + RS$ _____ property

   (c) $2(PQ + QR) = 2PQ + 2QR$ _____ property

7. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 8$, $m\angle J = 30°$.



   (a) Find the length JK

   (b) Find the length KL

8. Given a circle O with radius 6.

   (a) Find the circumference of O.

   (b) Find the area of O.