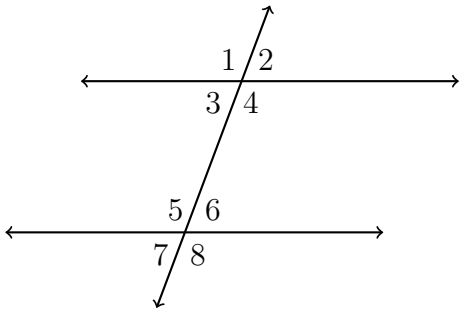
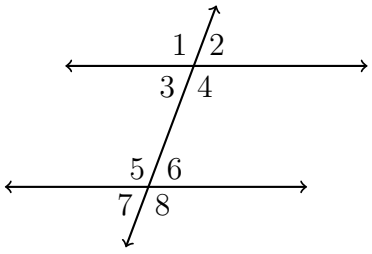
### 3.5 Homework: Transversals practice

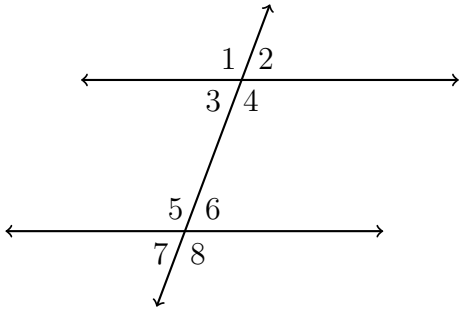
1. Review: Angle postulates and theorems you have learned.
   (a) $\perp$ lines and complementary $\angle$s make $90°$
   (b) linear pairs add to $180°$
   (c) vertical $\angle$s are $\cong$
   (d) definition of an angle bisector
   (e) isosceles base angle theorem
2. New theorems for parallel lines
   (a) *corresponding* $\angle$s of $\parallel$ lines are $\cong$
   $\angle 2 \cong \angle 6$
   (b) *same-side interior* $\angle$s are supplementary
   $m\angle 3 + m\angle 5 = 180$
   (c) *alternate exterior* $\angle$s are $\cong$
   $\angle 2 \cong \angle 7$



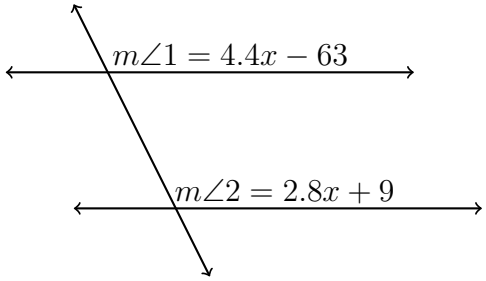

   Hint: There are only two angle measures, the acute angles and the obtuse angles (and they add to $180°$)
3. Given two parallel lines and a transversal, as shown, with $m\angle 6 = 70°$. Write down the value of each angle measure.
   (a) $m\angle 1 =$ (e) $m\angle 5 =$
   (b) $m\angle 2 =$ (f) $m\angle 6 =$
   (c) $m\angle 3 =$ (g) $m\angle 7 =$
   (d) $m\angle 4 =$ (h) $m\angle 8 =$



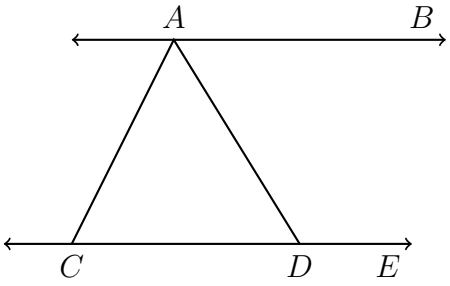

4. Given two parallel lines and a transversal, with $m\angle 4 = 3x$ and $m\angle 5 = x + 70$. Write an equation, then solve for $x$.



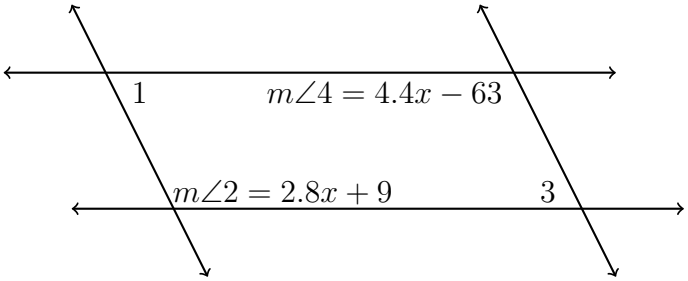

5. Two parallel lines intersect a transversal. Given corresponding angles $m\angle 1 = 4.4x - 63$ and $m\angle 2 = 2.8x + 9$, find the measure of $\angle 1$.




6. Given parallel lines $\overleftrightarrow{AB} \parallel \overleftrightarrow{CDE}$ with $\overline{AC} \cong \overline{CD}$. If $m\angle BAD = 80$ find $m\angle ACD$.




7. Two parallel lines intersect a second set of parallel lines. Given $m\angle 2 = 2.8x + 9$ and $m\angle 4 = 4.4x - 63$, find the measure of $\angle 1$.




8. Given two parallel lines and a transversal intersecting them, creating eight angles labeled as shown. Identify each angle.

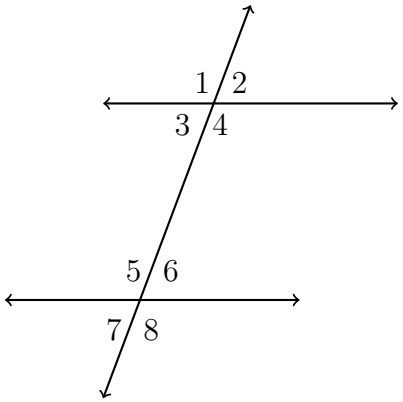
(a) The angle that is opposite $\angle 2$

(b) An angle that makes a linear pair with $\angle 7$

(c) An acute angle

(d) The vertical angle to $\angle 5$

(e) An obtuse angle



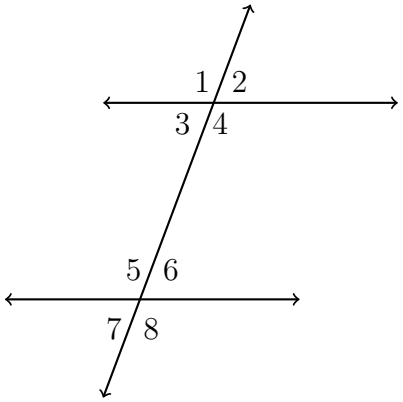

9. Name the angle labeled in the diagram of two parallel lines crossed by a transversal.

(a) The angle *corresponding* to $\angle 6$

(b) The *alternate exterior* angle with $\angle 8$

(c) The *same-side interior* angle to $\angle 5$

(d) The *alternate interior* angle with $\angle 4$



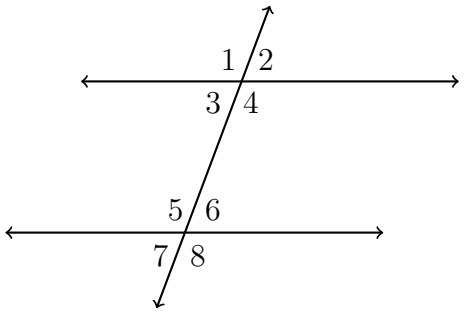

10. Identify the relationships among the angles made by two parallel lines and a transversal, as shown. True or False:

(a) T F $\angle 3 \cong \angle 6$

(b) T F $\angle 4 \cong \angle 7$

(c) T F $m\angle 3 + m\angle 5 = 180$

(d) T F $m\angle 1 + m\angle 8 = 180$

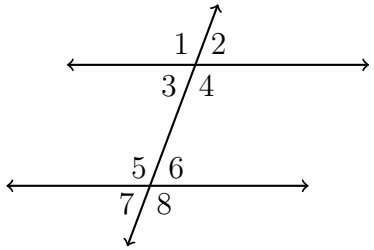



11. Given two parallel lines and a transversal, as shown. Write down each value, given that $m\angle 5 = 120°$.

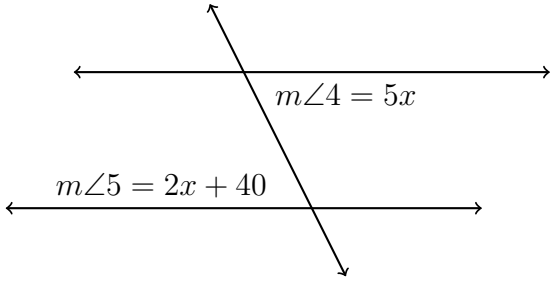
(a) $m\angle 3 =$

(b) $m\angle 2 =$

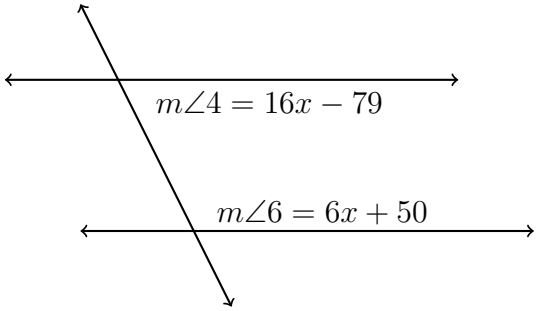
(c) $m\angle 4 = 2x$. Find $x$




12. Given two parallel lines and a transversal, with alternate interior angles $m\angle 4 = 5x$ and $m\angle 5 = 2x + 40$. Write an equation, then solve for $x$.




13. Two parallel lines intersect a transversal, shown. Given the same-side interior angles $m\angle 4 = 16x - 79$ and $m\angle 6 = 6x + 50$. Solve for $x$ then find the measure of $\angle 4$.




14. Given parallel lines $\overleftrightarrow{AB} \parallel \overleftrightarrow{CF}$, $m\angle BAE = 75°$ and $m\angle DAE = 55°$.

    Find $m\angle ADC = x$ and $m\angle AEF = y$.