Geometry Unit 3: Transversals

Bronx Early College Academy

Christopher J. Huson PhD

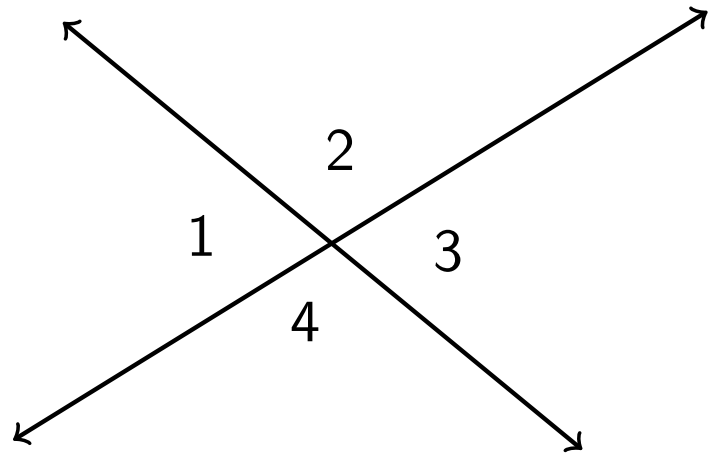
11 October - 21 October 2022

Learning Target: I can name parallel lines transversal angles

HSG.CO.C.9 Prove theorems about lines and angles 3.1 Tuesday 11 October

Do Now: Identify the true statements

1. $\angle 1 \cong \angle 2$
2. $\angle 2 \cong \angle 4$
3. $m\angle 1 + m\angle 4 = 180°$
4. $m\angle 2 + m\angle 3 = 90°$



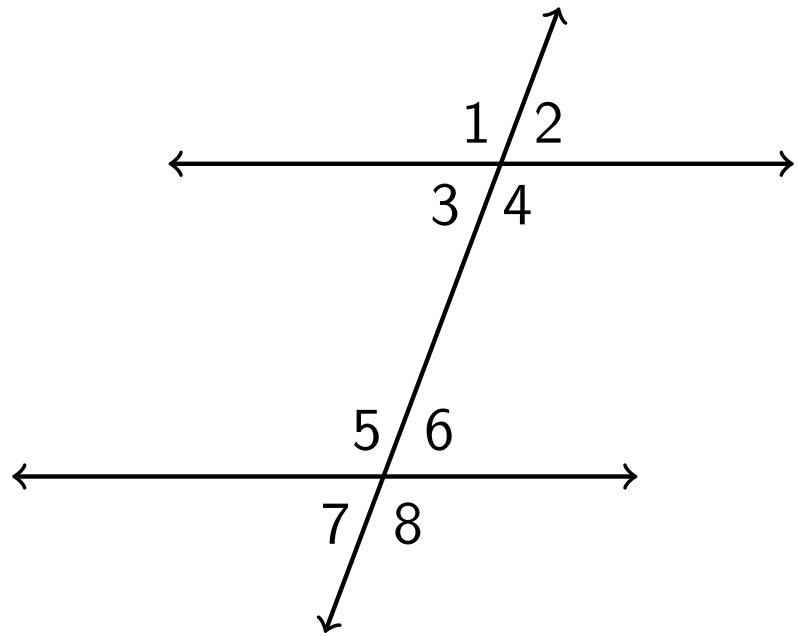
Review: Angle postulates and theorems you have learned.

1. $\perp$ lines and complementary $\angle$s make $90°$
2. linear pairs add to $180°$
3. vertical $\angle$s are $\cong$
4. definition of an angle bisector

New terminology for parallel lines

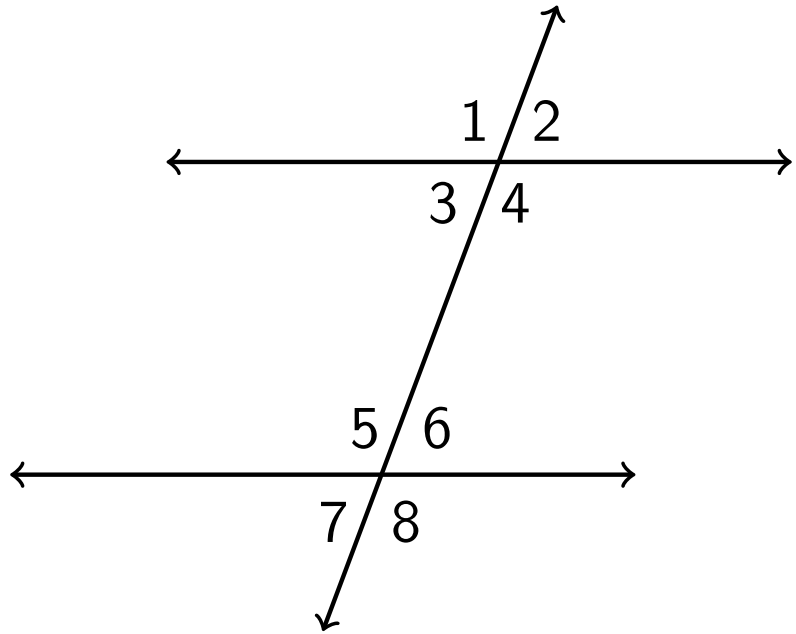
Parallel lines are in the same plane and never intersect

1. *parallel lines*, symbol: $\parallel$ tick marks
2. *transversal line*
3. *interior, exterior* $\angle$s
4. *same-side, alternate* $\angle$s



New theorems for parallel lines

1. *corresponding* $\angle$s of $\parallel$ lines are $\cong$
   $\angle 2 \cong \angle 6$
2. *same-side interior* $\angle$s are supplementary
   $m\angle 3 + m\angle 5 = 180$
3. *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°)

New theorems for parallel lines

Given two parallel lines and a transversal, as shown, with $m\angle 6 = 70°$. Write down the value of each angle measure.

ep=0.5cm $m\angle 1$ viitemsep=0.5cm $m\angle 7 =$

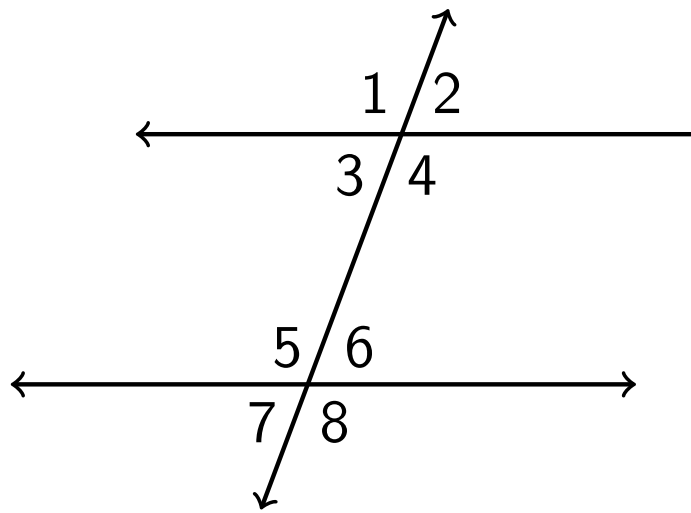
ep=0.5cm $m\angle 2 =$

ep=0.5cm $m\angle 3 =$

ep=0.5cm $m\angle 4 =$

ep=0.5cm $m\angle 5 =$

ep=0.5cm $m\angle 6$ viiitemsep=0.5cm $m\angle 8 =$

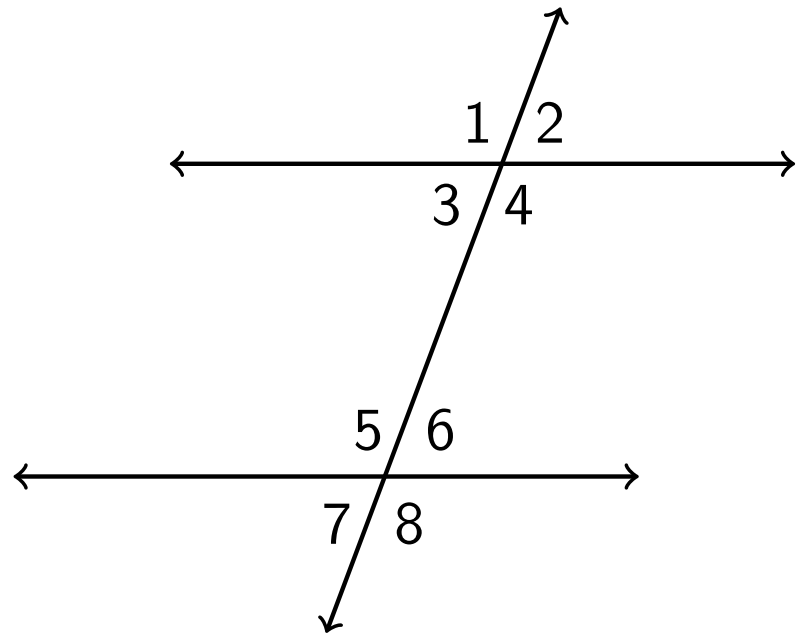


Learning Target: I can calculate transversal angles

HSG.CO.C.9 Prove theorems about lines and angles 3.2 Wednesday 12 October

Do Now: Identify each angle

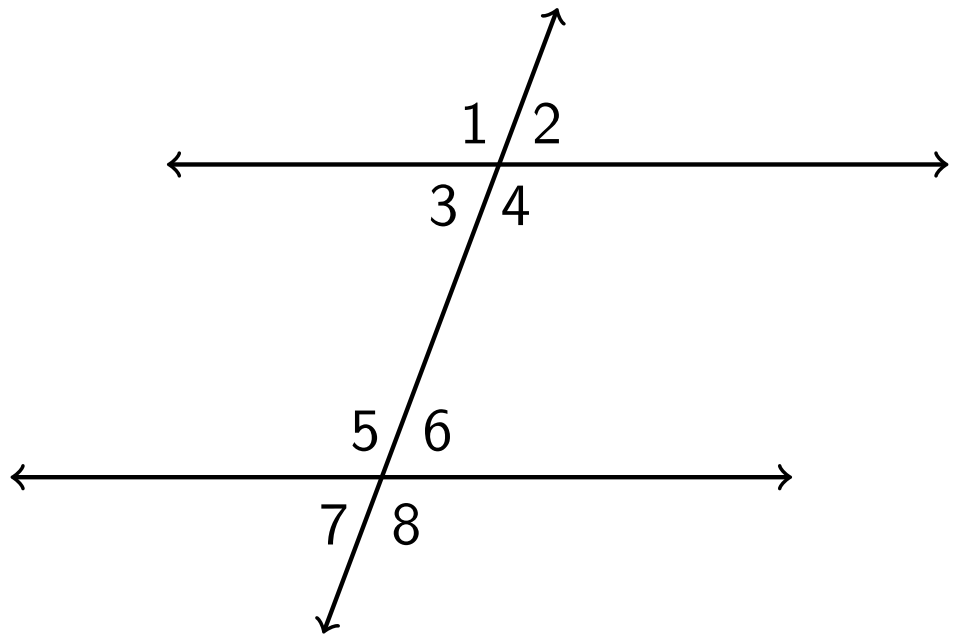
1. Opposite $\angle 4$
2. Corresponding to $\angle 3$
3. Alternate exterior to $\angle 8$
4. Same side interior to $\angle 5$
5. Alternate interior to $\angle 4$



Learning Target: I can calculate transversal angles

HSG.CO.C.9 Prove theorems about lines and angles 3.3 Thursday 13 October

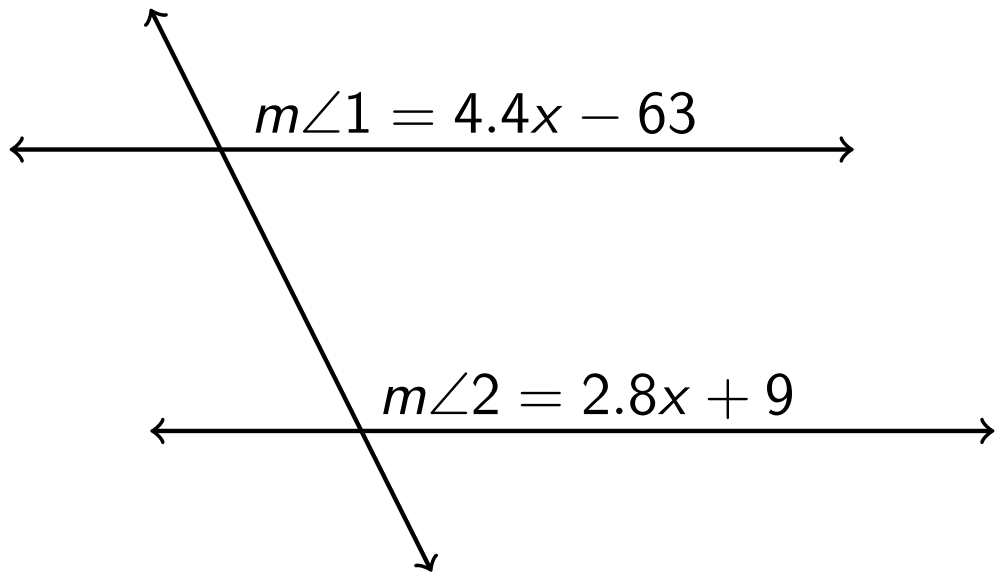
Given two parallel lines and a transversal, with $m\angle 4 = 3x$ and $m\angle 5 = x + 70$.
Write an equation, then solve for x.



Learning Target: I can define a parallelogram

HSG.CO.C.9 Prove theorems about lines and angles 3.4 Friday 14 October

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 $\angle 1$.



Learning Target: I can calculate triangle angles

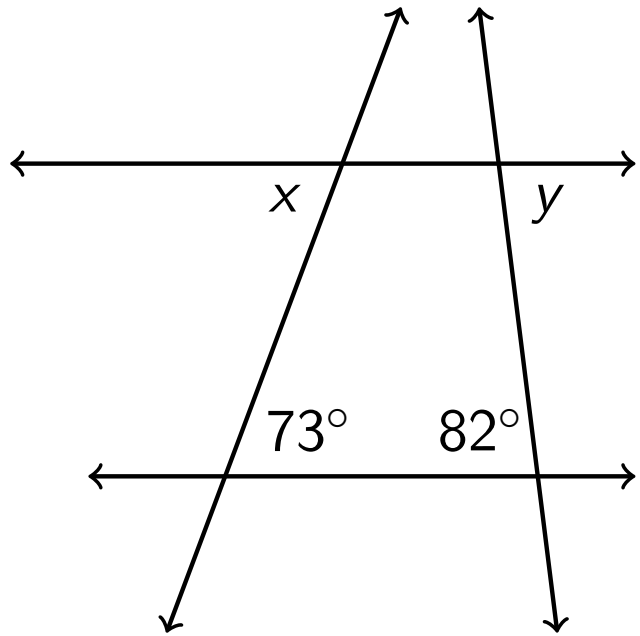
HSG.CO.C.9 Prove theorems about lines and angles 3.5 Monday 17 October

Learning Target: I can calculate external triangle angles

HSG.CO.C.9 Prove theorems about lines and angles 3.6 Tuesday 18 October

Do Now:

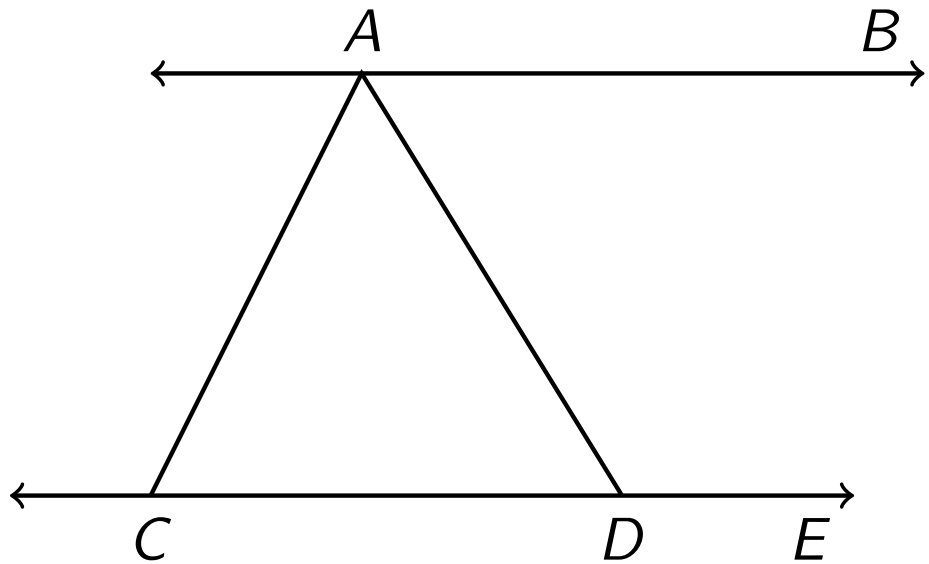
1. Given two parallel lines, two transversals
2. Find x, y
3. What relationship are you using? (e.g. vertical angles, same-side exterior angles, alternate interior angles, etc.)



Lesson: Sum of a triangle's interior angles is 180°

Homework: Deltamath 3.6 (Marking Period ends tomorrow)

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

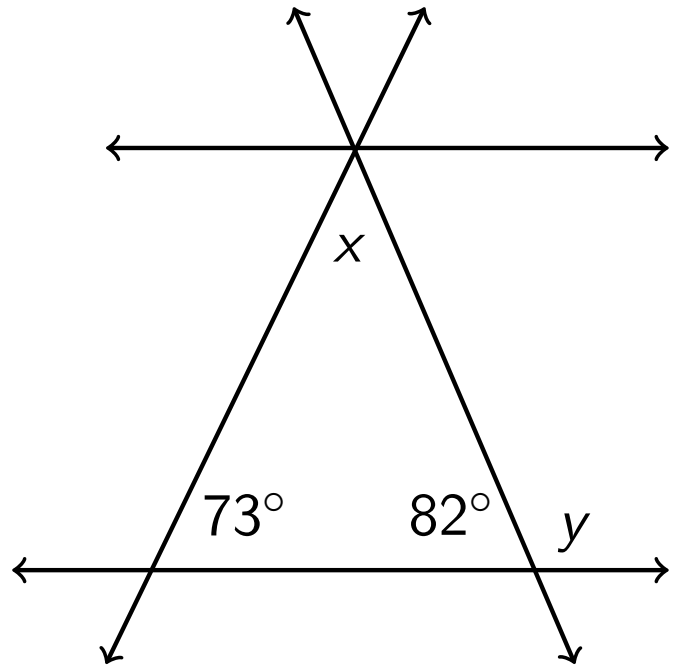


Learning Target: I can calculate angles in parallelograms

HSG.CO.C.9 Prove theorems about lines and angles 3.7 Wednesday 19 October

Do Now:

1. Given a triangle, shown
2. Find x, y
3. What relationships are you using? (e.g. vertical angles, same-side exterior angles, alternate interior angles, etc.)

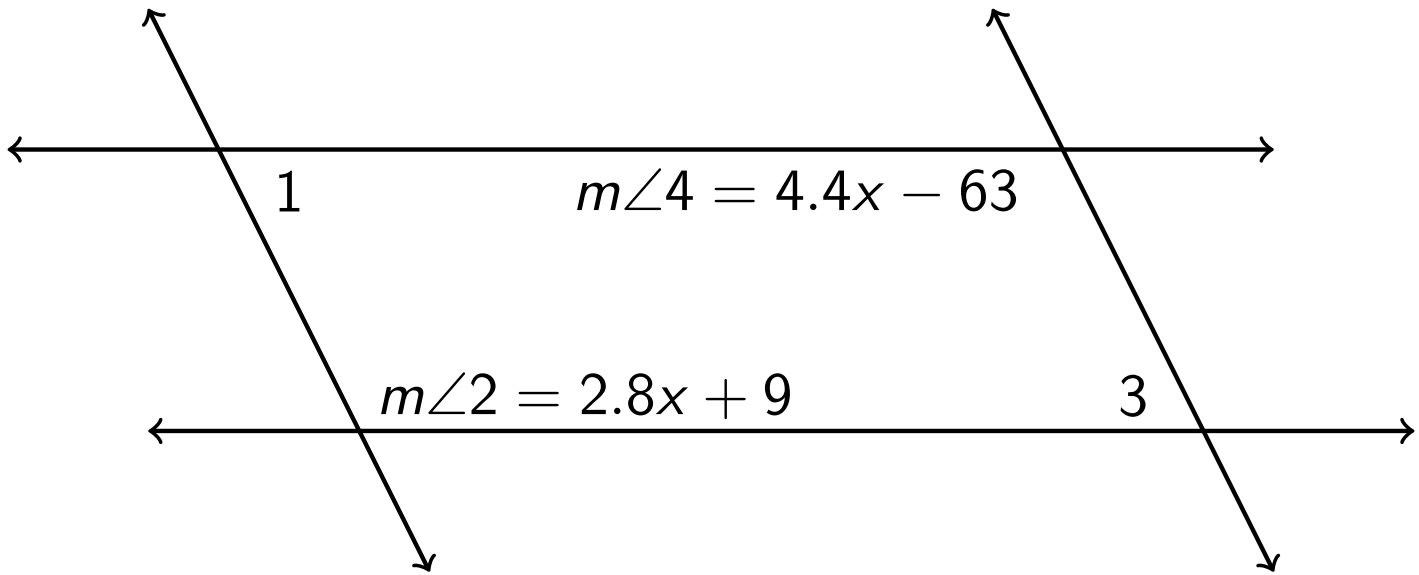


Lesson: Triangle's exterior angles

Learning Target: I can review with my classmates

HSG.CO.C.9 Prove theorems about lines and angles 3.8 Thursday 20 October

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 $\angle 1$.



Learning Target: I can review with my classmates

HSG.CO.C.9 Prove theorems about lines and angles 3.9 Friday 21 October

Notebook credit

Mastery grades 1 to 4

Take organized notes and study them for the test Friday

1. Well below: Few notes or no notebook
2. Approaching expectations: Many pages of notes in a composition book. Missing several formulas and definitions.
3. Proficient: Well organized composition book with most or all formulas and terminology easy to locate.
4. Extending: Assesses peers and gives constructive feedback.