Geometry Unit 3: Transversals

Bronx Early College Academy

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11 October - 21 October 2022

3.1 Identify transversal angles	11 October
3.2 Transversals problems	12 October
3.3 Transversal situations	13 October
3.4 Parallelograms	14 October
3.5 Triangle sum proof	17 October
3.6 External angles	18 October
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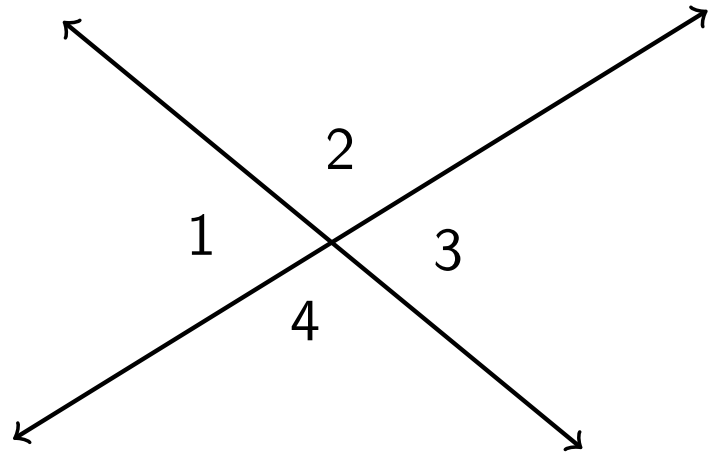
3.8 Transversals review	20 October
3.9 Transversals test	21 October

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. $m\angle 2 + m\angle 3 = 90°$



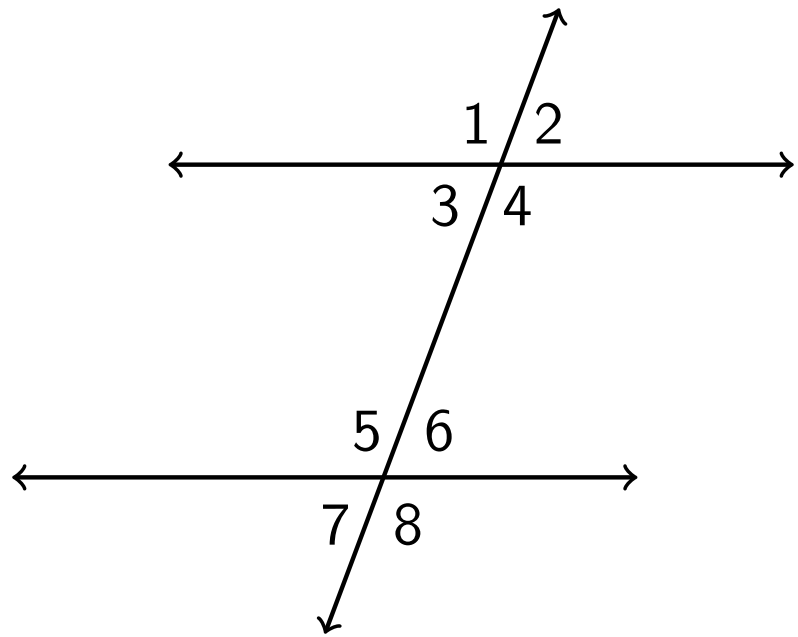
Review: Angle postulates and theorems you have learned.

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

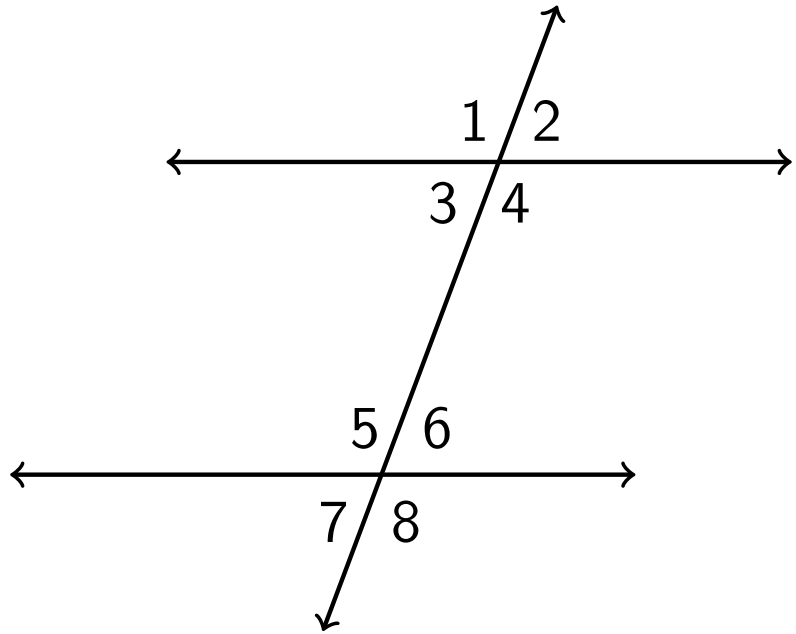
Parallel lines are in the same plane and never intersect

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



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 $m\angle 6 = 70^\circ$. Write down the value of each angle measure.

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

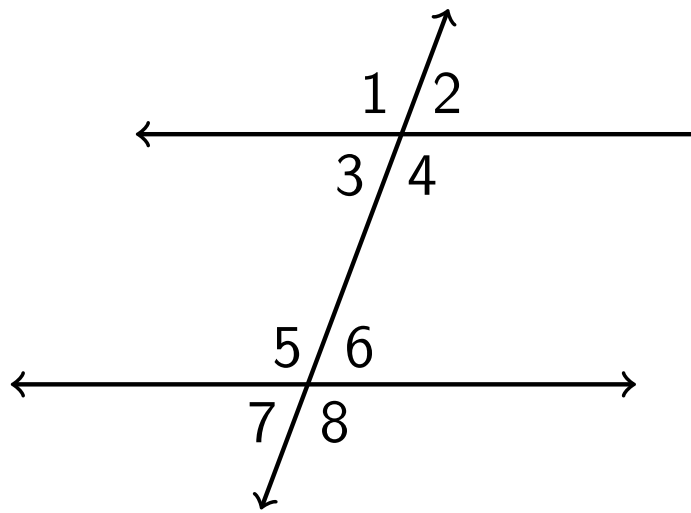
ep=0.5cm $m\angle 2 =$

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 $m\angle 8 =$

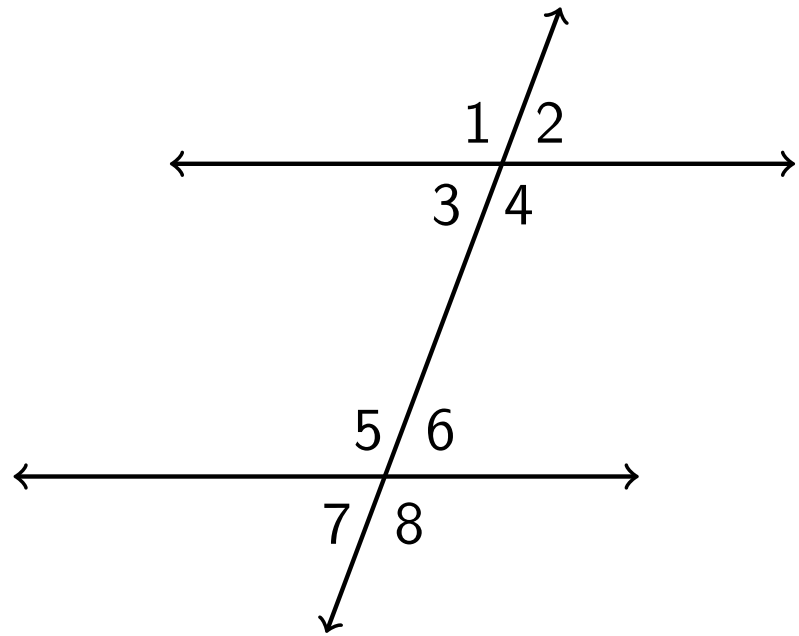


Learning Target: I can calculate transversal angles

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

Do Now: Identify each angle

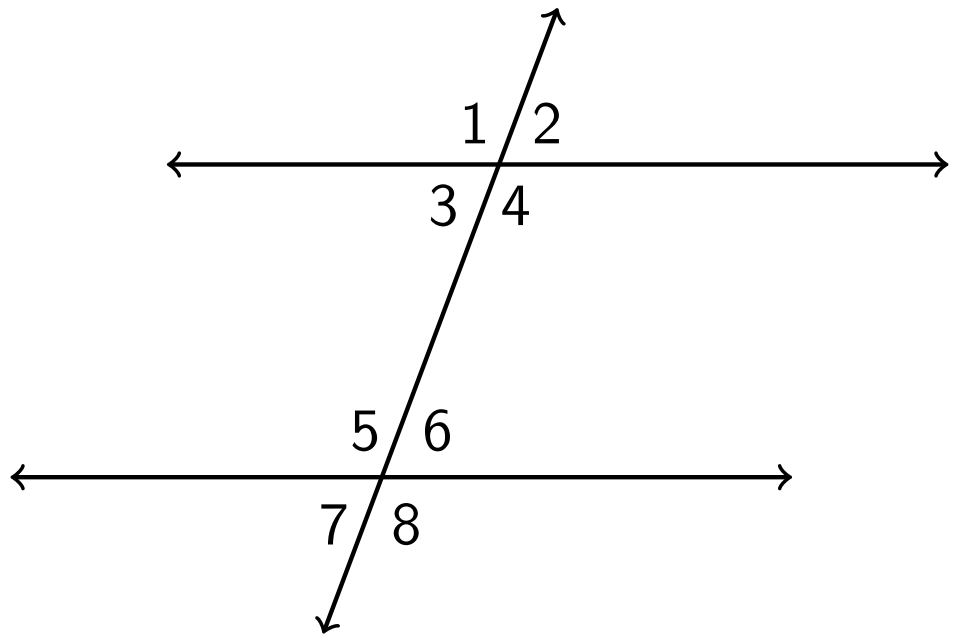
1. Opposite $\angle 4$
2. Corresponding to $\angle 3$
3. Alternate exterior to $\angle 8$
4. Same side interior to $\angle 5$
5. Alternate interior to $\angle 4$



Learning Target: I can calculate transversal angles

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

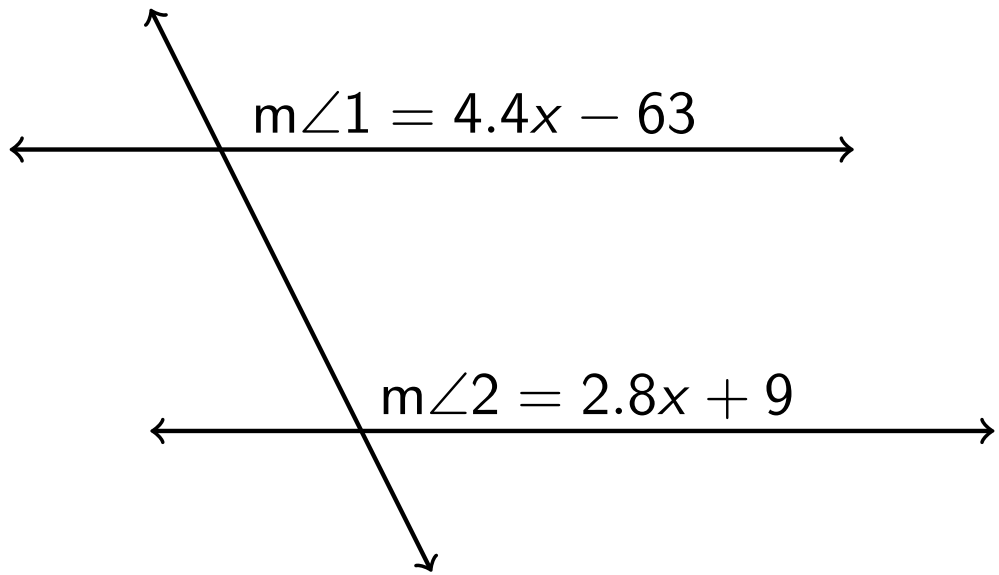
Given two parallel lines and a transversal, with $m\angle 4 = 3x$ and $m\angle 5 = x + 70$.
Write an equation, then solve for x.



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

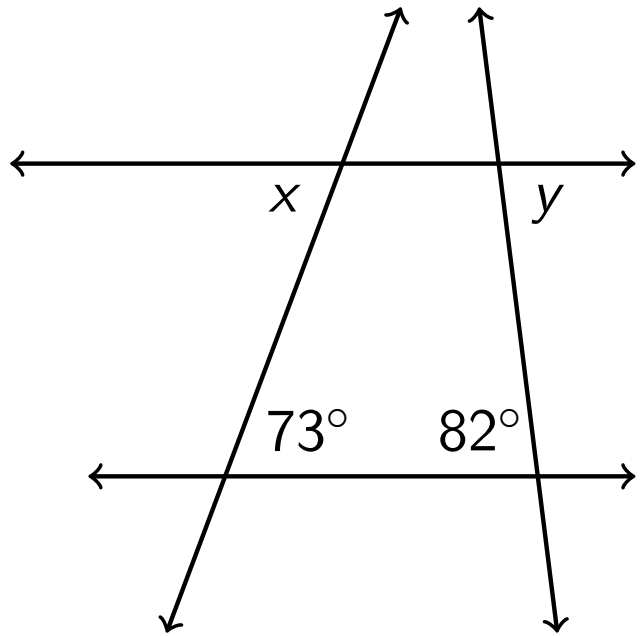
HSG.CO.C.9 Prove theorems about lines and angles 3.5 Monday 17 October

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:

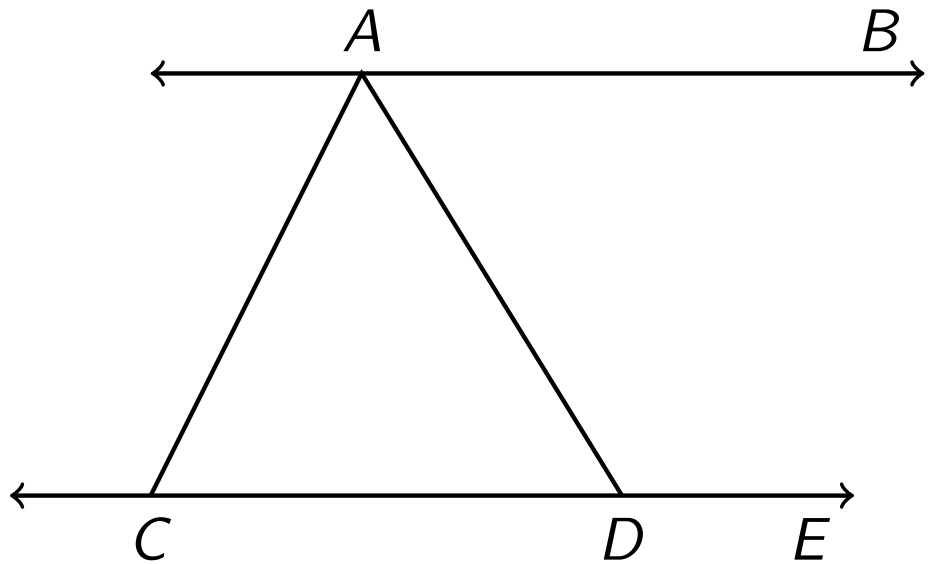
1. Given two parallel lines, two transversals
2. Find x, y
3. What relationship are you using? (e.g. vertical angles, same-side exterior angles, alternate interior angles, etc.)



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 $m\angle ACD$.

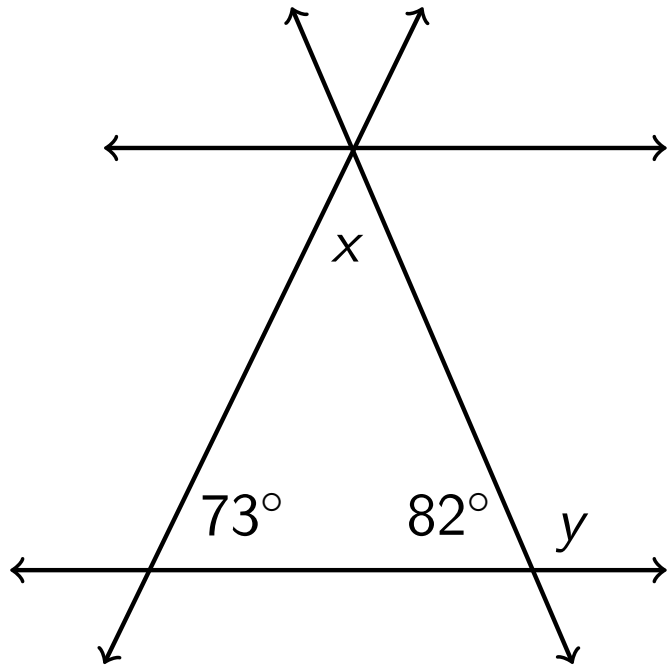


Learning Target: I can calculate angles in parallelograms

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.)

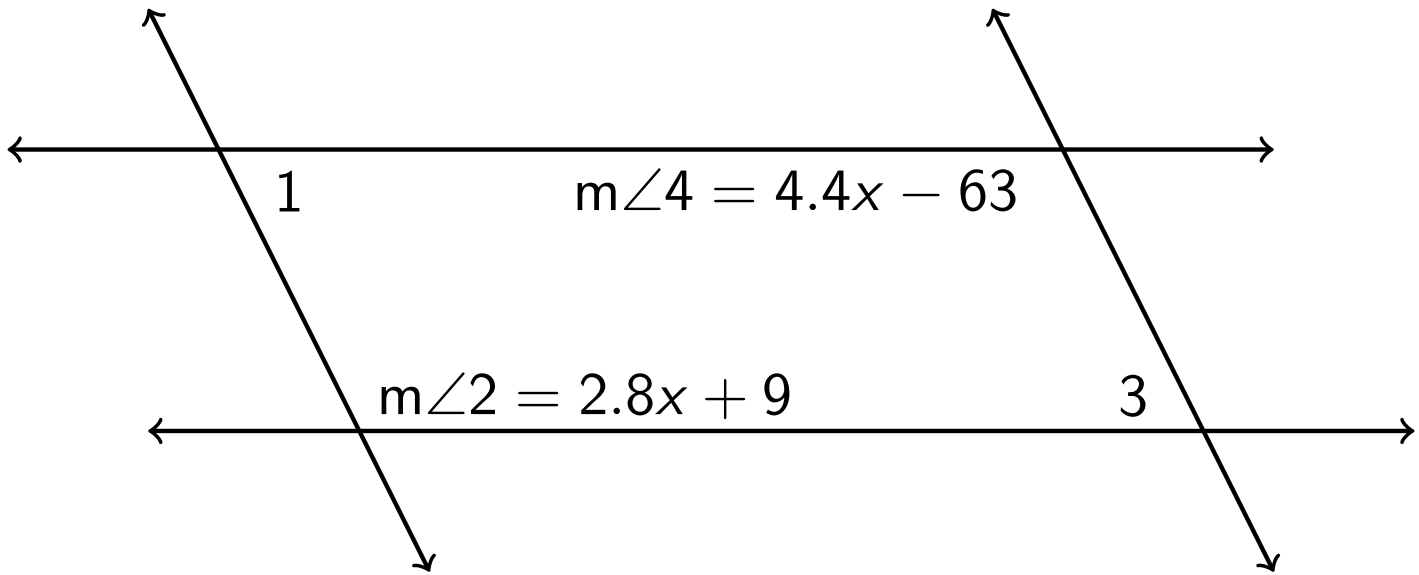


Lesson: Triangle's exterior angles

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