REVIEW: Proofs & Angles and Parallel Lines/Transversals

Tuesday, October 28, 2025 9:20 PM

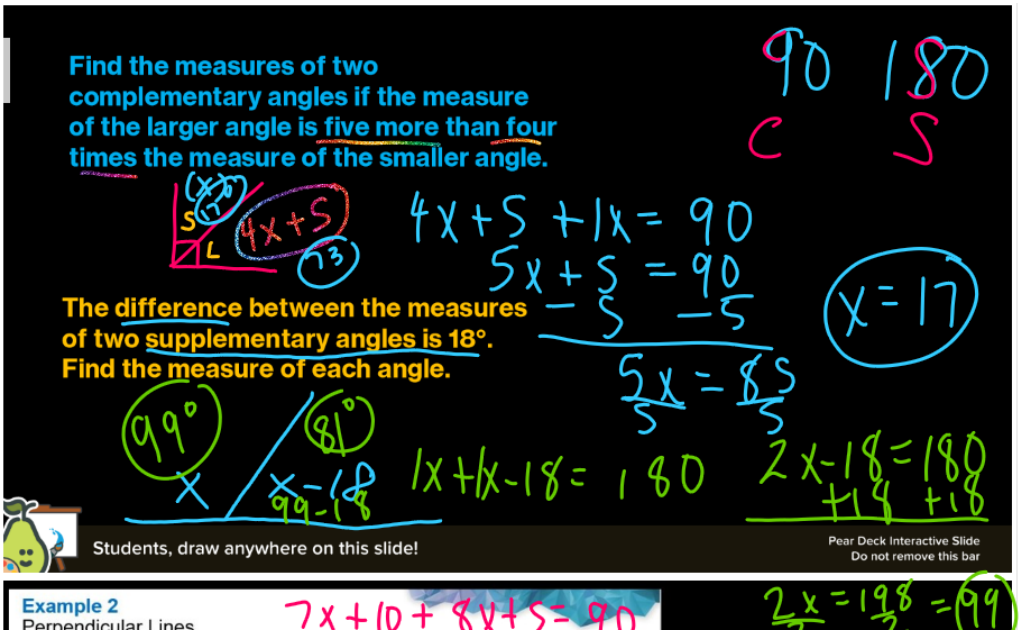
STUDY VOCAB FOLDER MODULE 2 & 3. STUDY NOTES 2.1/2.2 AND 3.7

STUDY FROM YOUR JOURNAL ENTRIES 6,7, AND 8.

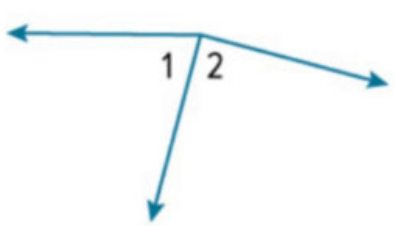
MAKE SURE YOU COMPLETED THE FOLLOWING: MCGRAW HILL PROOFS & PARALLEL LINES/TRANSVERSALS HW, TEAMS PROOFS/ANGLES QUIZ *honestly did your best!

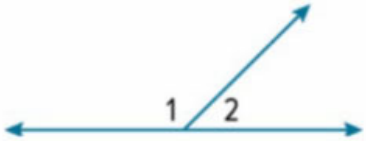
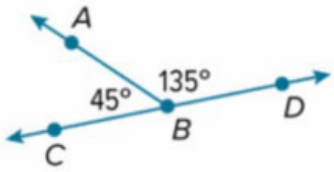
Know your angles:
Complementary 90
Supplementary 180

How to solve problems involving complementary & supplementary angles.



Know what adjacent angles and linear pair angles are:

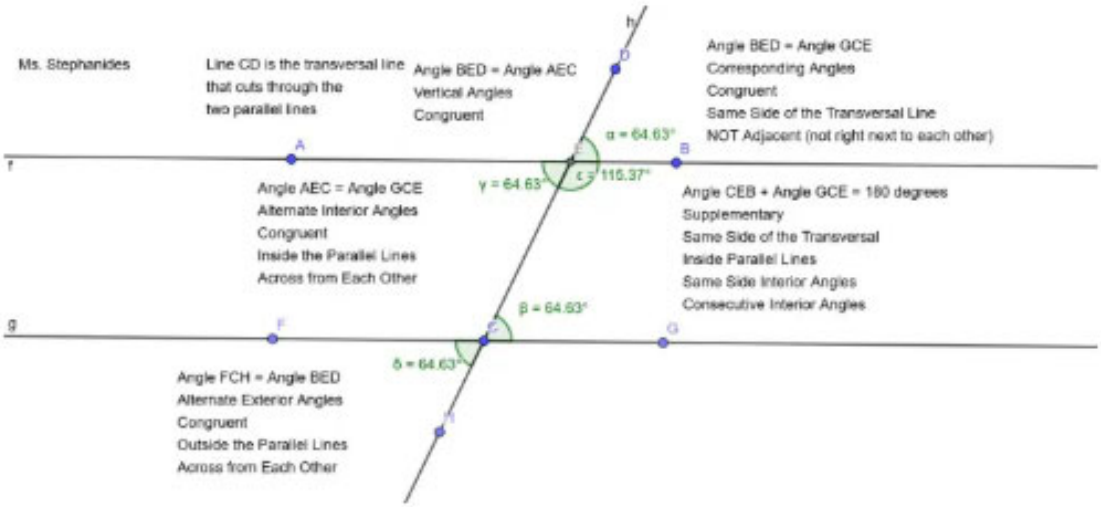
Special Angle Pair Definition	Examples
Adjacent angles are two angles that lie in the same plane, have a common vertex and a common side, but have no common interior points.	 ∠1 and ∠2 are adjacent angles.

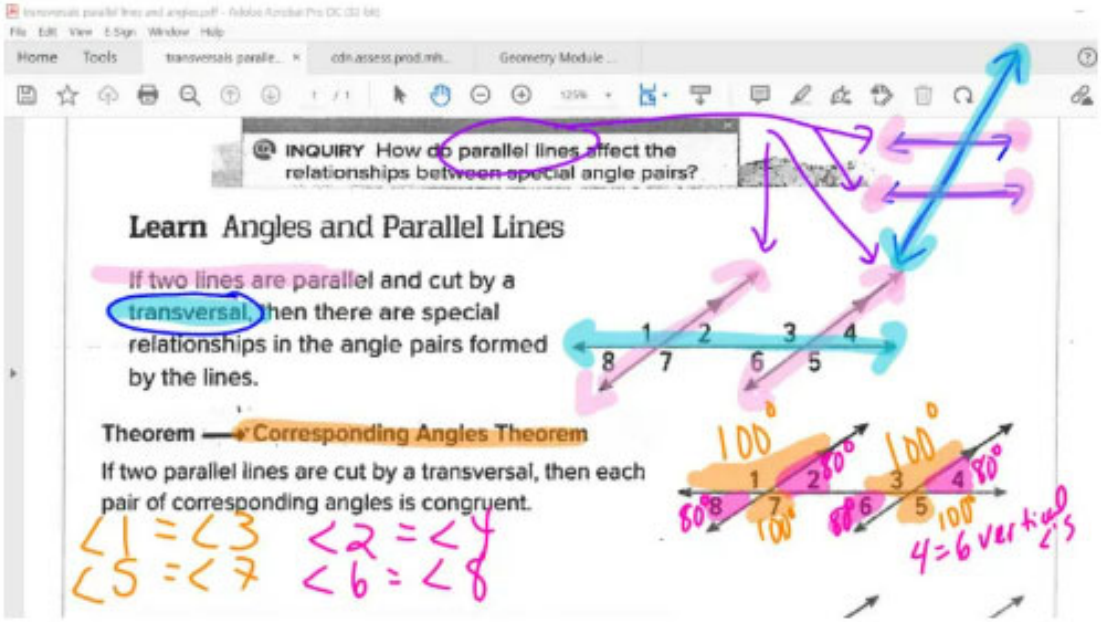
Special Angle Pair Definition	Examples
A **linear pair** is a pair of adjacent angles with noncommon sides that are opposite rays.	 ∠1 and ∠2 are a linear pair.
The sum of the angle measures is 180°.	

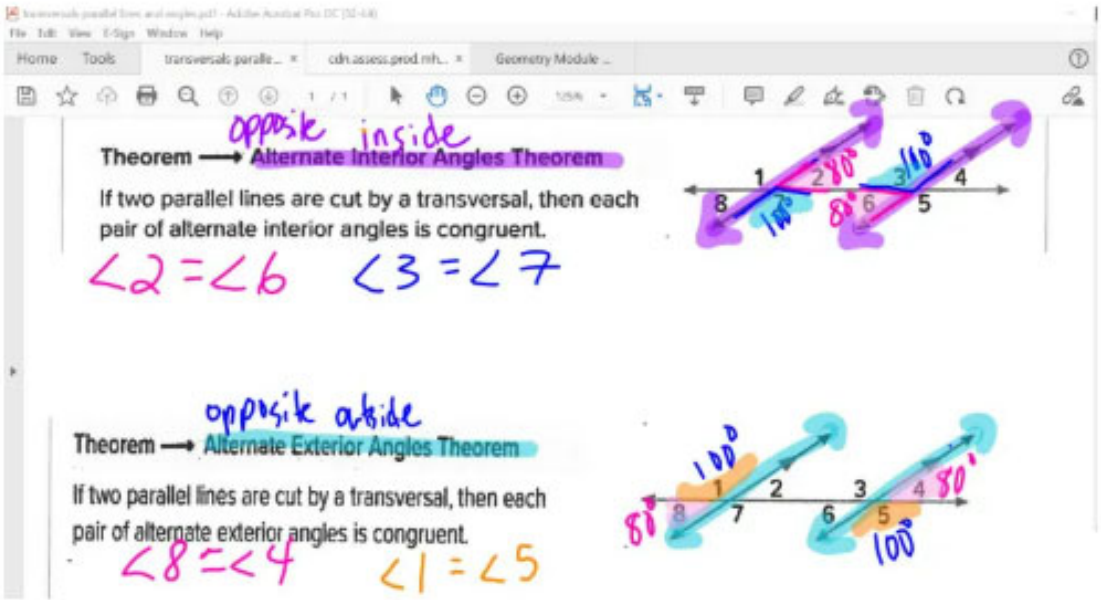
*Know that a linear pair is also considered supplementary and called a "straight angle" = 180 which also happens to be adjacent angles.

Know all the properties and names of angles created by parallel lines and transversals. Know how to solve the angle degrees with algebraic expressions whether to set them up to equal each other or add up to be supplementary (=180 degrees) *the consecutive/same side interior angles.

Also know how to find all eight angle degrees given one angle (for example if angle 1 in the picture below is 42 degrees find all of the angle degrees!)


Ms. Stephanides
Line CD is the transversal line that cuts through the two parallel lines
Angle BED = Angle AEC
Vertical Angles
Congruent
Angle BED = Angle GCE
Corresponding Angles
Congruent
Same Side of the Transversal Line
NOT Adjacent (not right next to each other)
Angle AEC = Angle GCE
Alternate Interior Angles
Congruent
Inside the Parallel Lines
Across from Each Other
Angle CEB + Angle GCE = 180 degrees
Supplementary
Same Side of the Transversal
Inside Parallel Lines
Same Side Interior Angles
Consecutive Interior Angles
Angle FCH = Angle BED
Alternate Exterior Angles
Congruent
Outside the Parallel Lines
Across from Each Other


INQUIRY How do parallel lines affect the relationships between special angle pairs?
Learn Angles and Parallel Lines
If two lines are parallel and cut by a transversal, then there are special relationships in the angle pairs formed by the lines.
Theorem → Corresponding Angles Theorem
If two parallel lines are cut by a transversal, then each pair of corresponding angles is congruent.
∠1 = ∠3 ∠2 = ∠4
∠5 = ∠7 ∠6 = ∠8
4=6 vertical ∠s


Theorem → Alternate Interior Angles Theorem
If two parallel lines are cut by a transversal, then each pair of alternate interior angles is congruent.
∠2 = ∠6 ∠3 = ∠7
Theorem → Alternate Exterior Angles Theorem
If two parallel lines are cut by a transversal, then each pair of alternate exterior angles is congruent.
∠8 = ∠4 ∠1 = ∠5

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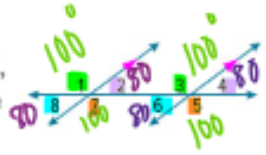
Learn

Angles and Parallel Lines supplementary

linear pair $\angle 1 + \angle 8 = 180$

If two lines are parallel and cut by a transversal, then there are special relationships in the angle pairs formed by the lines. $\angle 1 \cong \angle 7$ vertical $\angle$s



Theorem 3.14: Corresponding Angles Theorem

If two parallel lines are cut by a transversal, then each pair of corresponding angles is congruent.

$\angle 1 \cong$ 3,
2 $\cong \angle 4$,
$\angle 5 \cong$ 7,
6 $\cong \angle 8$

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Angles and Parallel Lines

Theorem 3.15: Alternate Interior Angles Theorem

If two parallel lines are cut by a transversal, then each pair of alternate interior angles is congruent.

$\angle 2 \cong$ 6,
3 $\cong \angle 7$

Theorem 3.16: Consecutive Interior Angles Theorem

next to

If two parallel lines are cut by a transversal, then each pair of consecutive interior angles is supplementary.

$\angle 2$ and 3,
6 and $\angle 7$

inside parallel lines

not linear

same side of transversal

180

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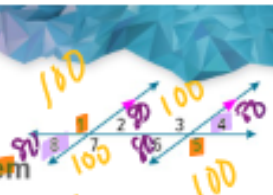
Angles and Parallel Lines



Theorem 3.17: Alternate Exterior Angles Theorem

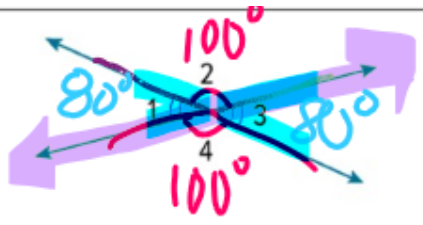
If two parallel lines are cut by a transversal, then each pair of alternate exterior angles is congruent.

1 $\cong \angle 5$,
$\angle 4 \cong$ 8

Vertical angles are the two nonadjacent angles formed by two intersecting lines.

opposite ≅

Vertical angles are congruent.



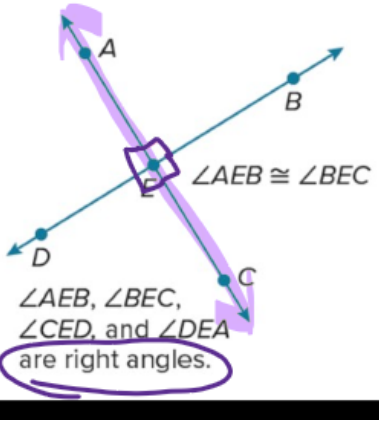
∠1 and ∠3 are vertical angles. ∠2 and ∠4 are vertical angles.

Lines, segments, or rays that intersect at right angles are **perpendicular**. Segments or rays can be perpendicular to lines or other line segments and rays. The right angle symbol indicates that the lines are perpendicular.

90°

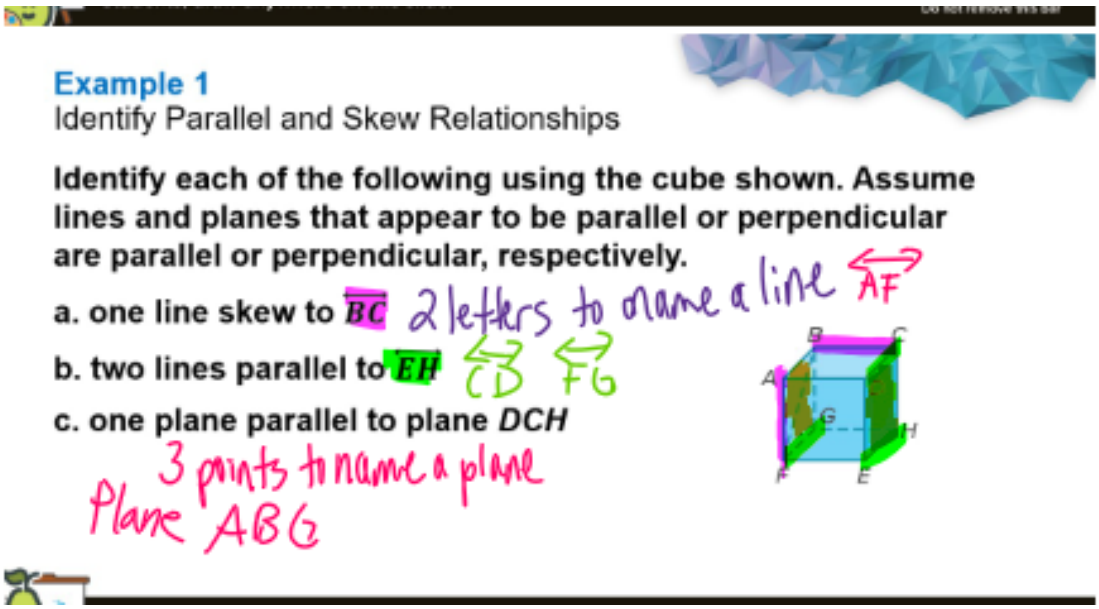
Perpendicular lines intersect to form four right angles.

Perpendicular lines intersect to form congruent adjacent angles.



*KNOW HOW TO NAME AN ANGLE (3 POINTS WITH THE VERTEX AS THE MIDDLE POINT) SEE EXAMPLES ABOVE.

Know whether lines are skew, intersecting, or parallel (same with planes)



PROOFS:

Know that all proofs start with what is "given" and the last statement is what they are asking you to "prove"

Know your Properties: addition, subtraction, division, distributive, transitive, symmetric, substitution, definition of congruence, angle addition property, midpoint theorem