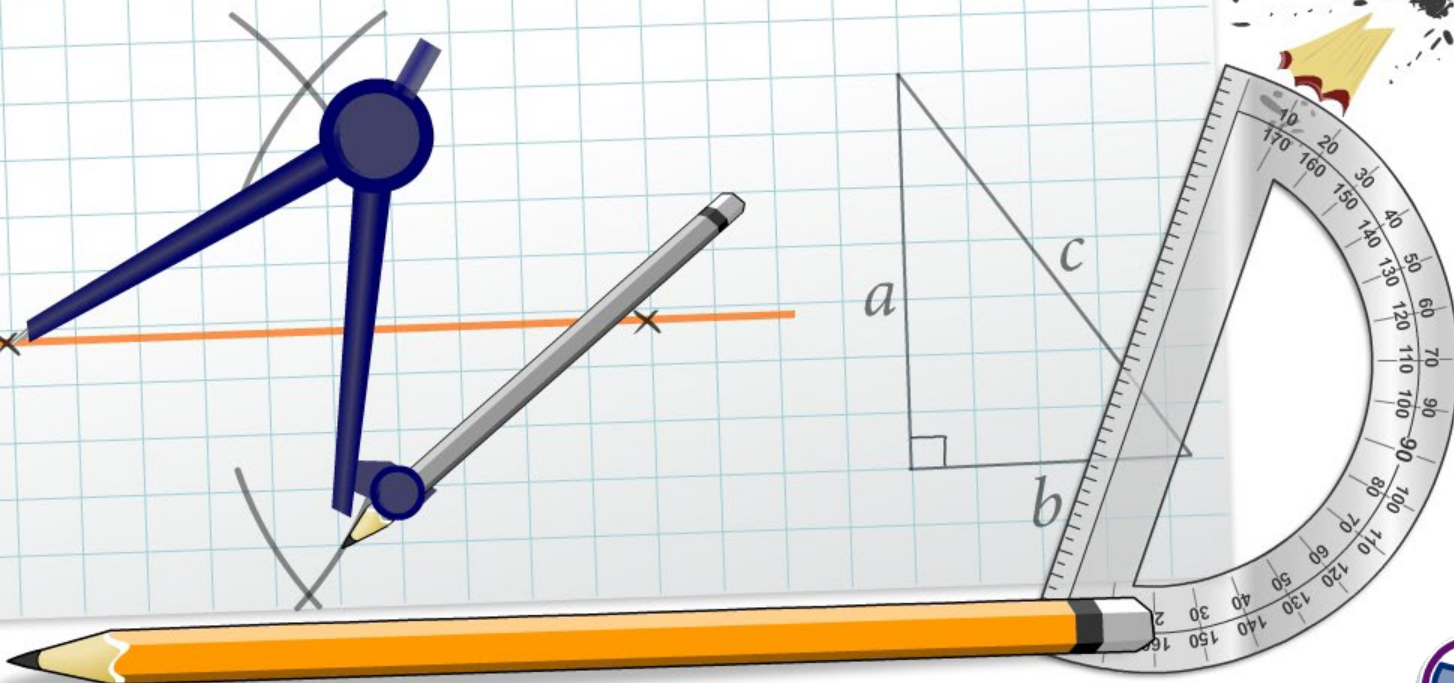


## Transversals



## Common core icons



This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.



Slides containing examples of mathematical modeling are marked with this stamp.



This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These are:

- 1) **Make sense of problems and persevere in solving them.**
- 2) **Reason abstractly and quantitatively.**
- 3) **Construct viable arguments and critique the reasoning of others.**
- 4) **Model with mathematics.**
- 5) **Use appropriate tools strategically.**
- 6) **Attend to precision.**
- 7) **Look for and make use of structure.**
- 8) **Look for and express regularity in repeated reasoning.**



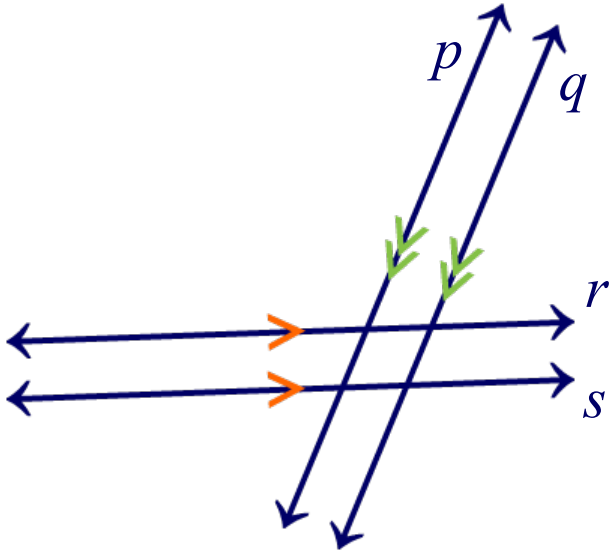
This icon indicates that the slide contains activities created in Flash. These activities are not editable.



This icon indicates teacher's notes in the Notes field.



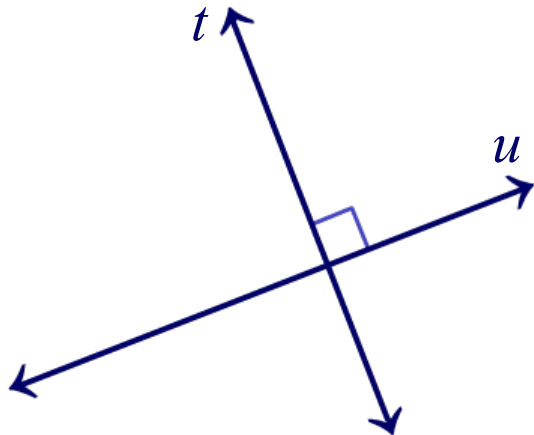
**Parallel lines** are coplanar and never intersect.



In the figure, the  $>$  and  $>>$  symbols mark corresponding parallel lines.

Parallel lines are written using the  $\parallel$  symbol, e.g.,  $r \parallel s$ .

**Perpendicular lines** intersect at right angles.

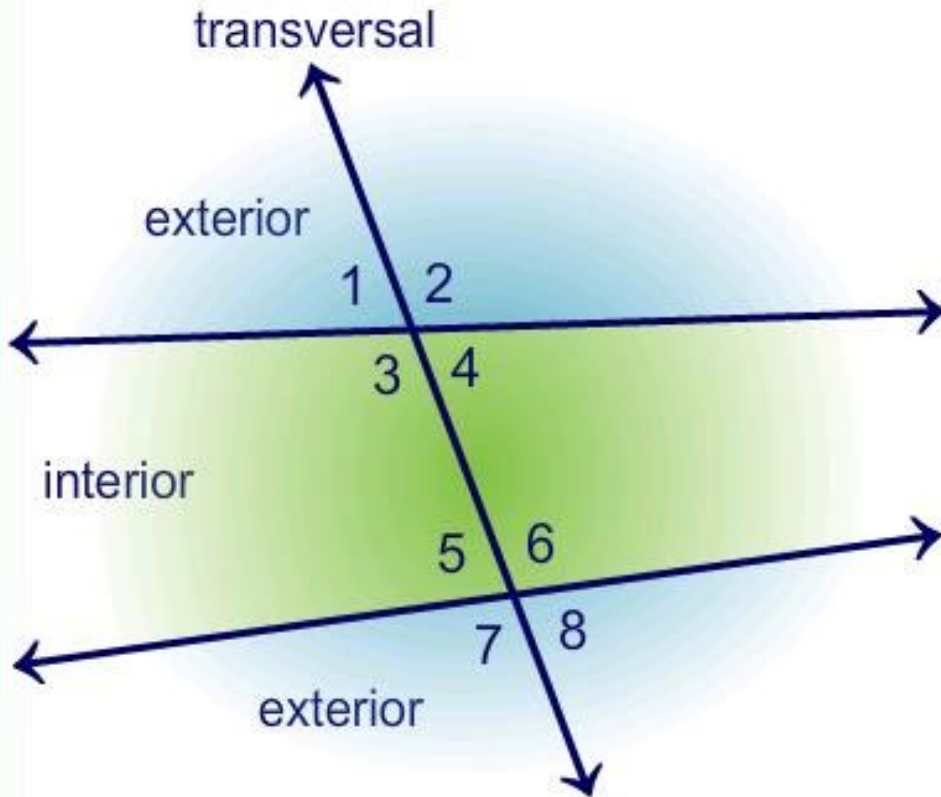


In the figure, the right angle symbol, marks perpendicular lines.

Perpendicular lines are written with the  $\perp$  symbol, e.g.,  $t \perp u$ .



## Transversals and angles



corresponding angles

alternate interior angles

alternate exterior angles

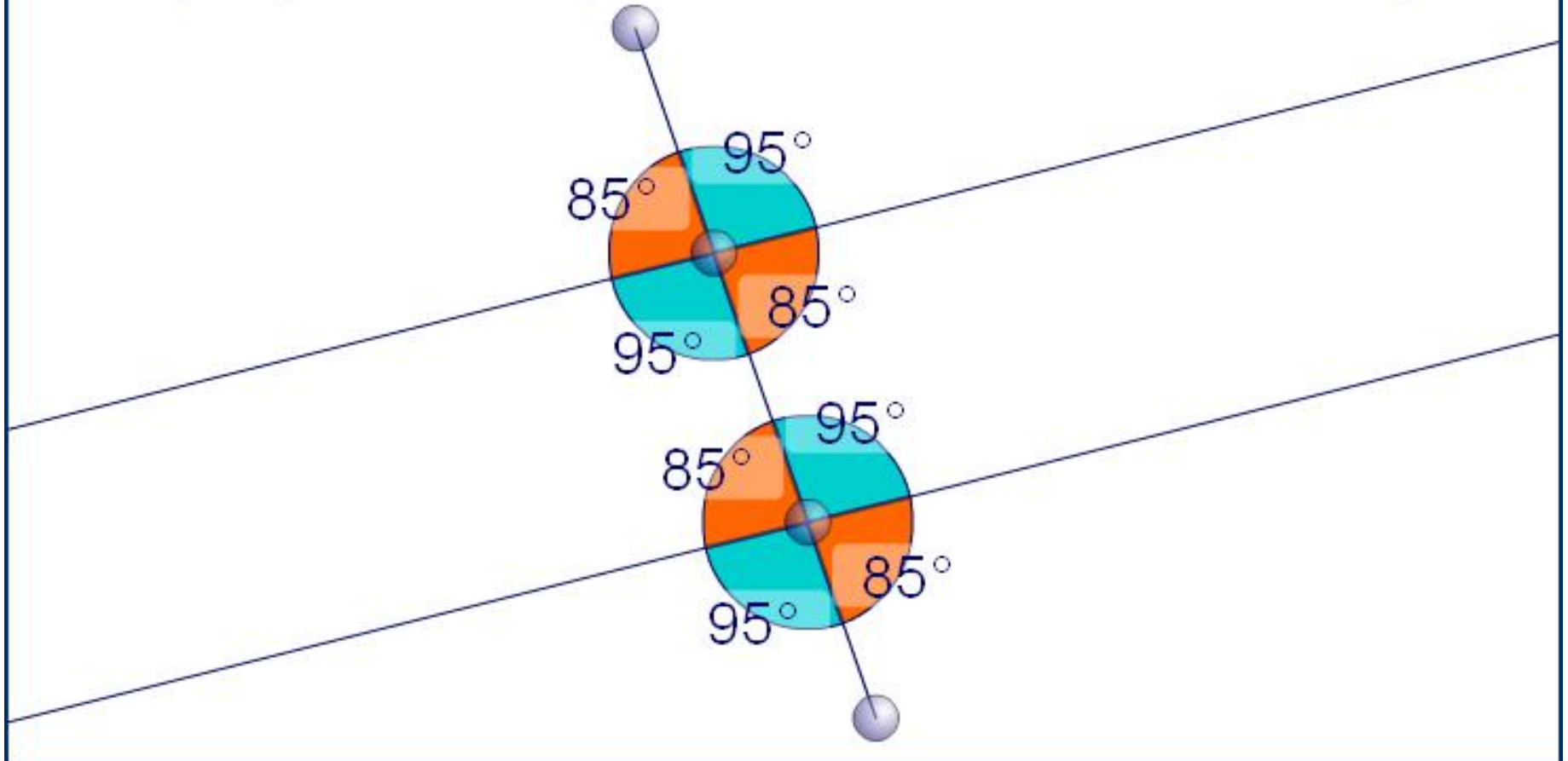
same-side interior angles

A **transversal** is a line that intersects two lines in the same plane at different points forming eight angles. Press on the terms above to explore the angles.



# Transversals of parallel lines

Drag the points to change the lines. Press to hide/reveal the angles.



## Match the angle terms with the correct figures

complementary angles

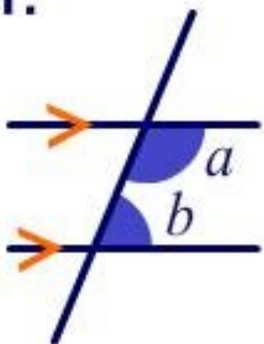
same-side interior angles

vertical angles

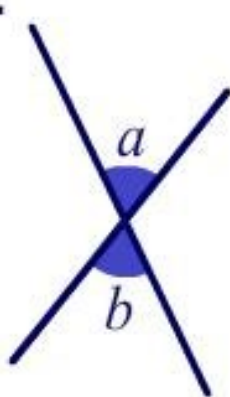
corresponding angles

alternate interior angles

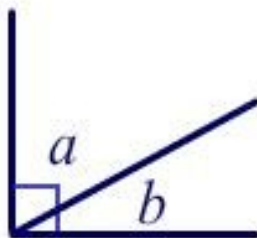
1.



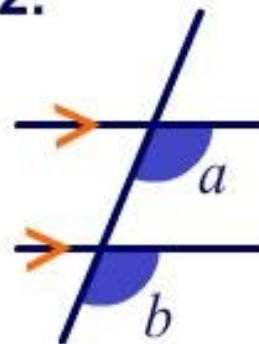
5.



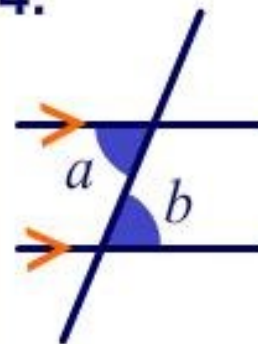
3.



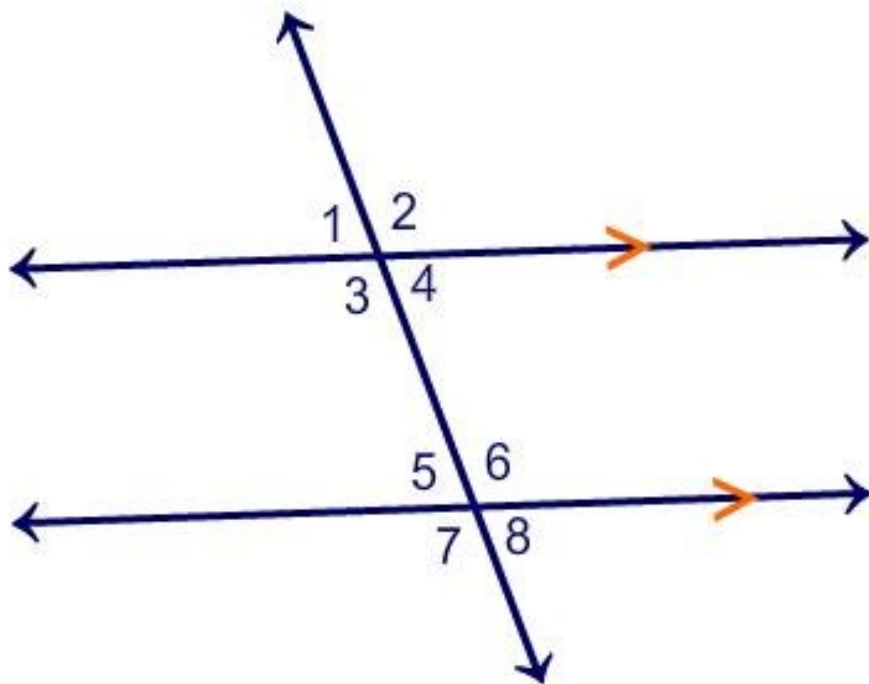
2.



4.



## Angle theorems – transversals of parallel lines



*corresponding angles postulate*

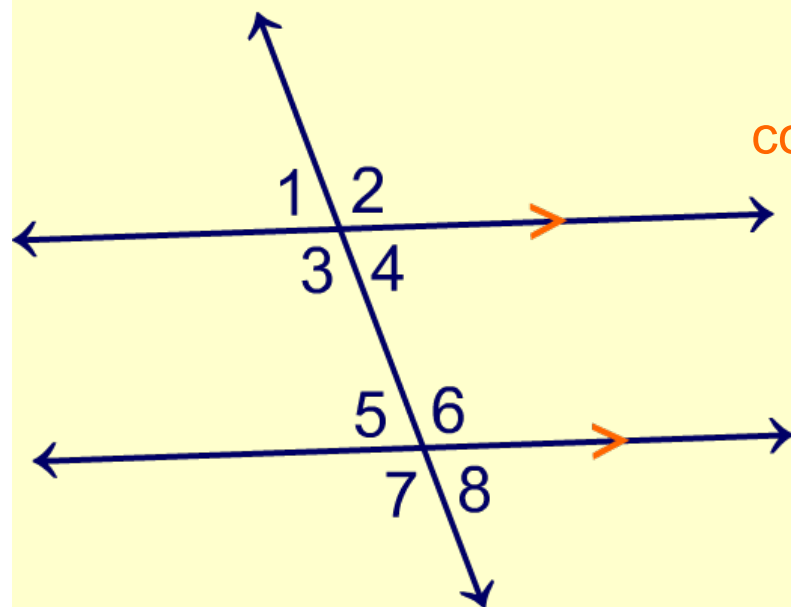
*alternate interior angles theorem*

*alternate exterior angles theorem*

*same-side interior angles theorem*



What can you say about the relationship between angles 1 and 8? Prove it.



**hypothesis:**  $\angle 1 \cong \angle 8$

**corresponding angles postulate:**  $\angle 1 \cong \angle 5$

**vertical angle theorem:**  $\angle 5 \cong \angle 8$

**transitive property of congruence:** Since  $\angle 5$  is congruent to both  $\angle 1$  and  $\angle 8$

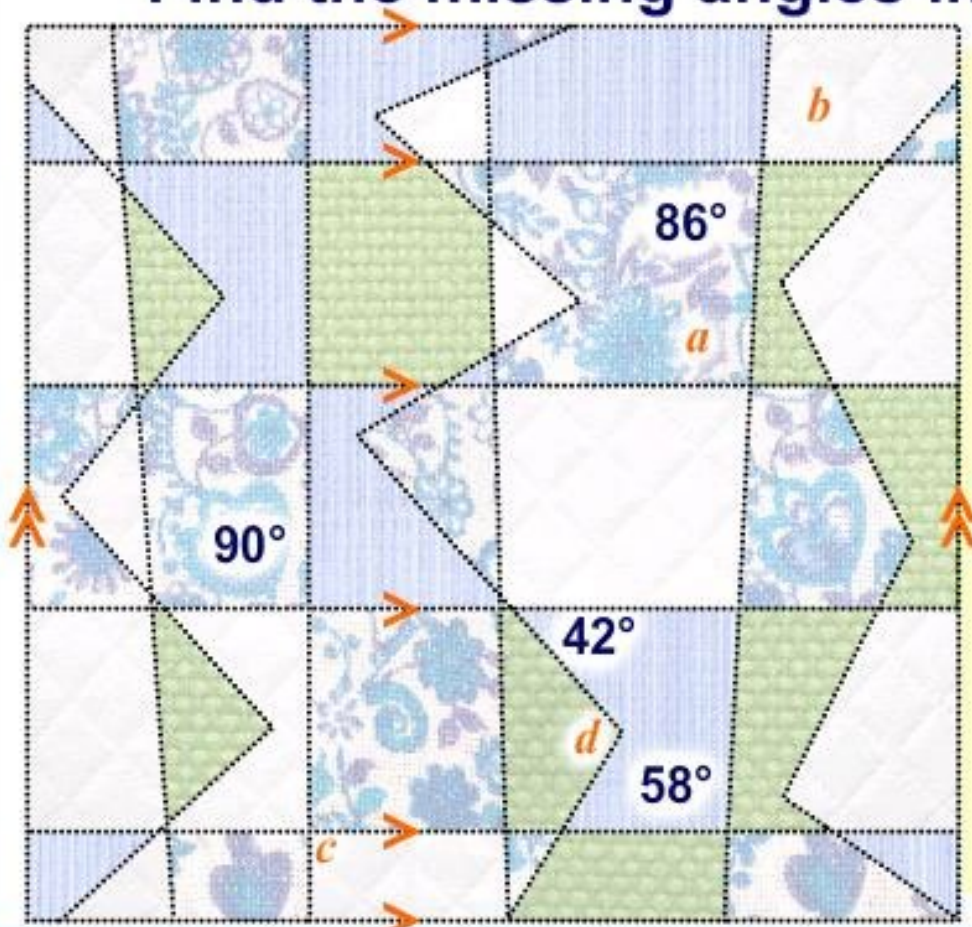
$\angle 1 \cong \angle 8$  ✓

Can you prove any other relationships between angles in the figure?





## Find the missing angles in the quilting pattern



Find the missing angles  
*a, b, c, d*  
in the quilting pattern.

Press on the angles to see  
the solutions.

