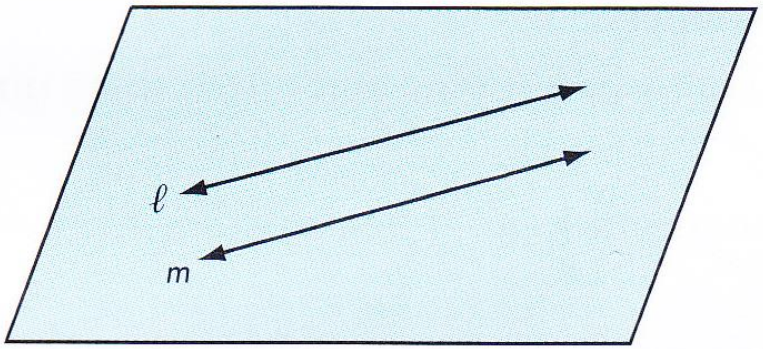
3.1

PARALLEL LINES AND TRANSVERSALS

1) Define parallel lines

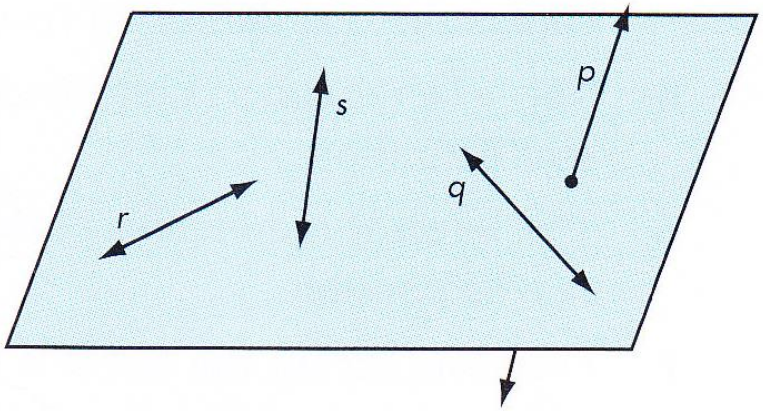
Parallel lines



$\ell \parallel m$

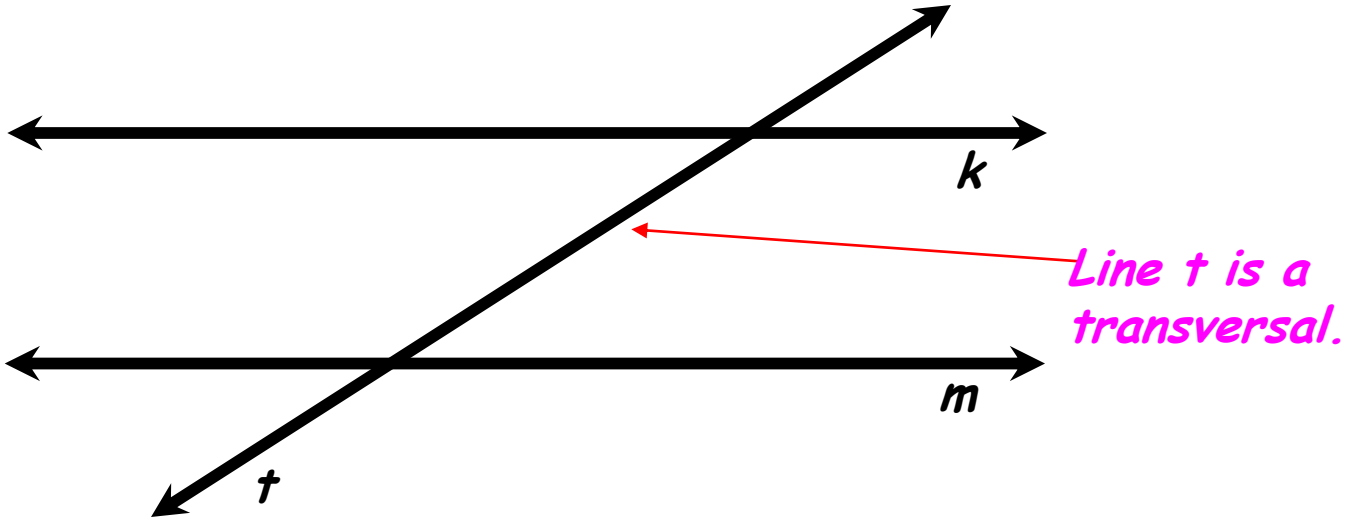
Note: Lines are sometimes labeled and named with lowercase letters. The symbol $\parallel$ means "is parallel to."

Not parallel lines



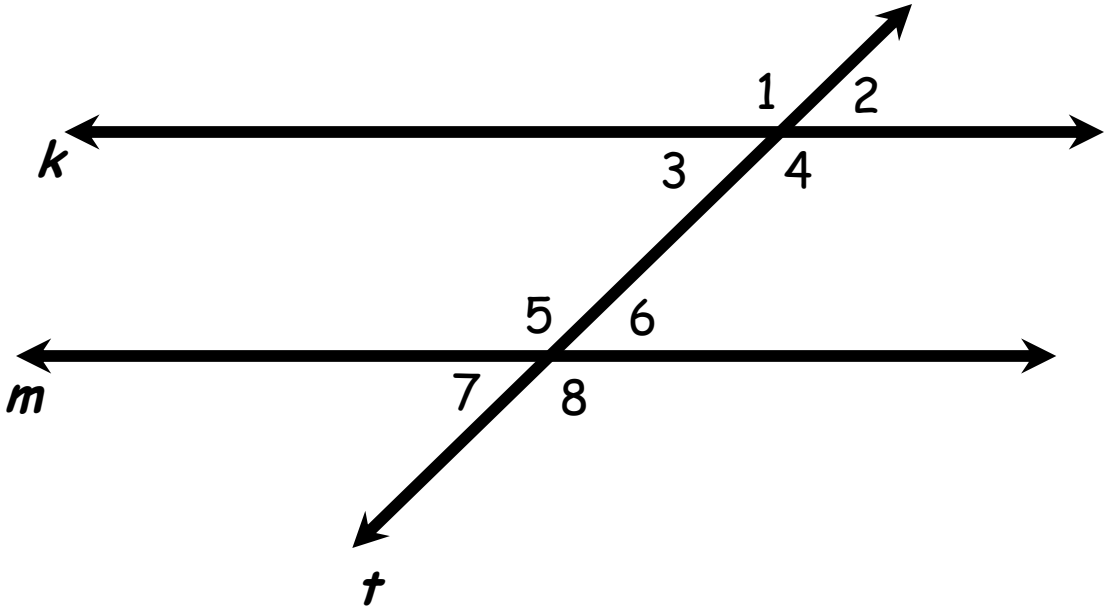
Line r is not parallel to line s.
Line p is not parallel to line q.
Note: Lines p and q are not in the same plane. Such lines are called **skew** lines.

What is a transversal?



A line that intersects two or more lines in different points.

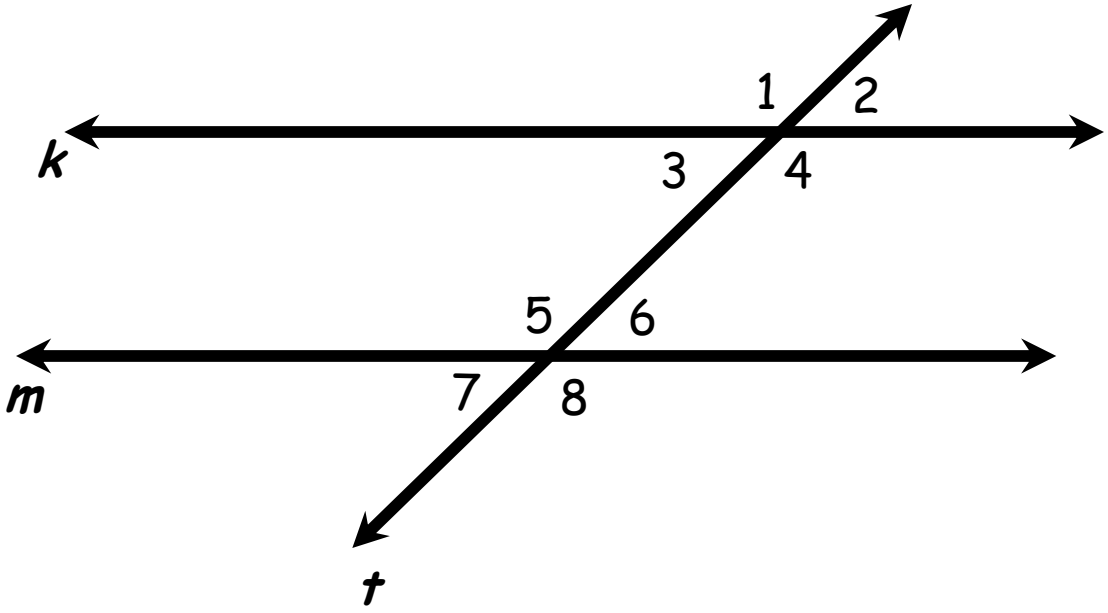
Corresponding Angles



Helpful Letter

Corresponding angles lie on the _____ of the transversal and in _____ positions.

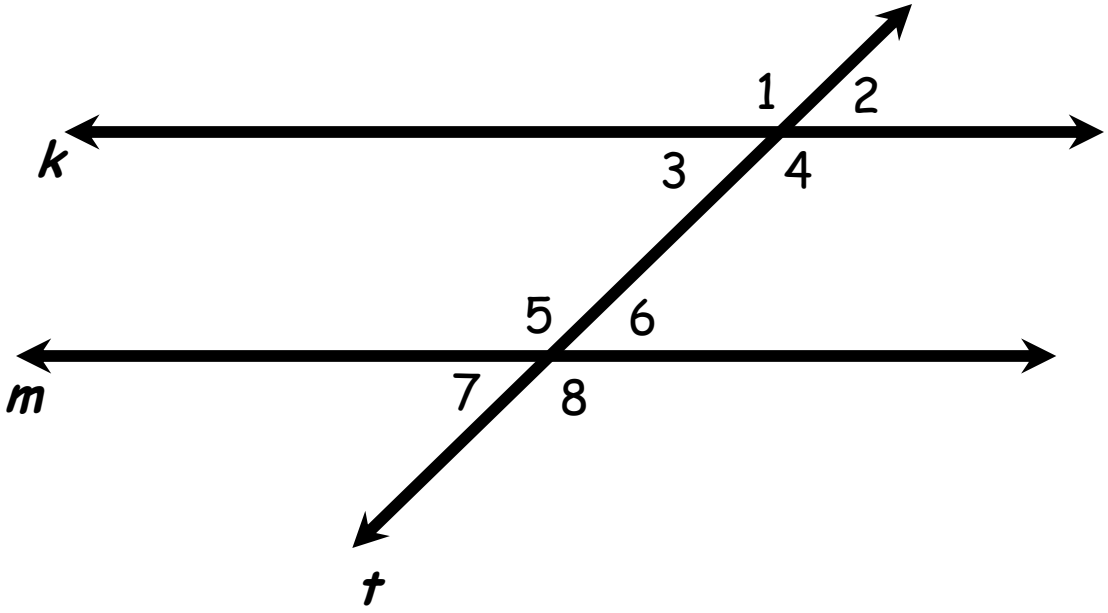
Alternate Interior Angles



Helpful Letter

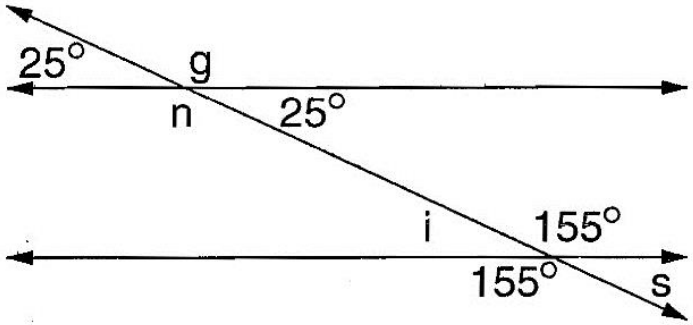
Alternate interior angles lie on the _____ of the transversal. They are _____ the two lines being crossed.

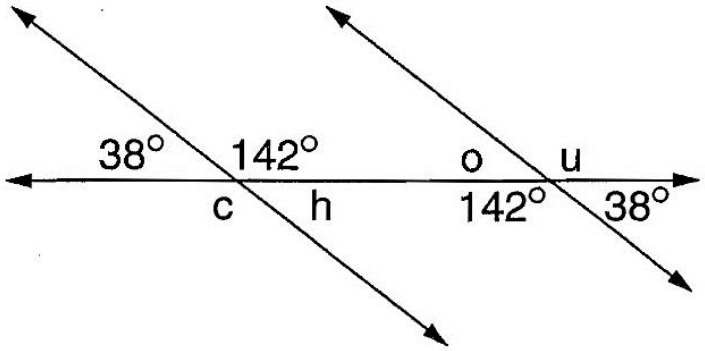
Alternate Exterior Angles

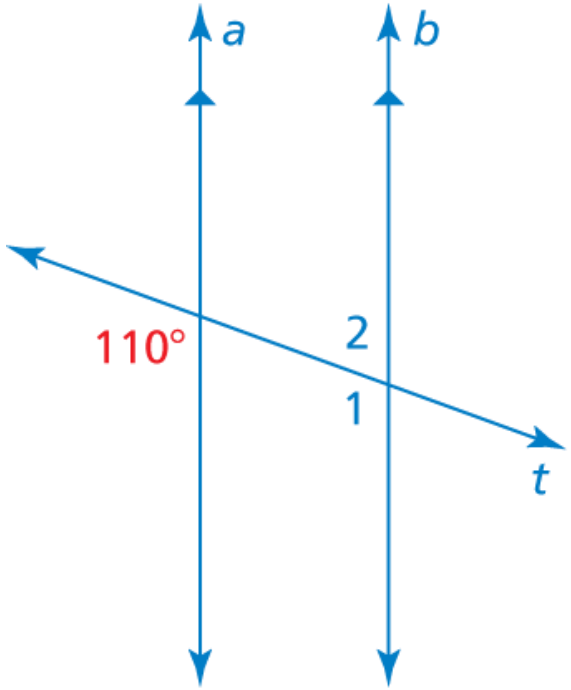


Alternate exterior angles lie on the _____ of the transversal. They are _____ the two lines being crossed.

Find the missing angles.





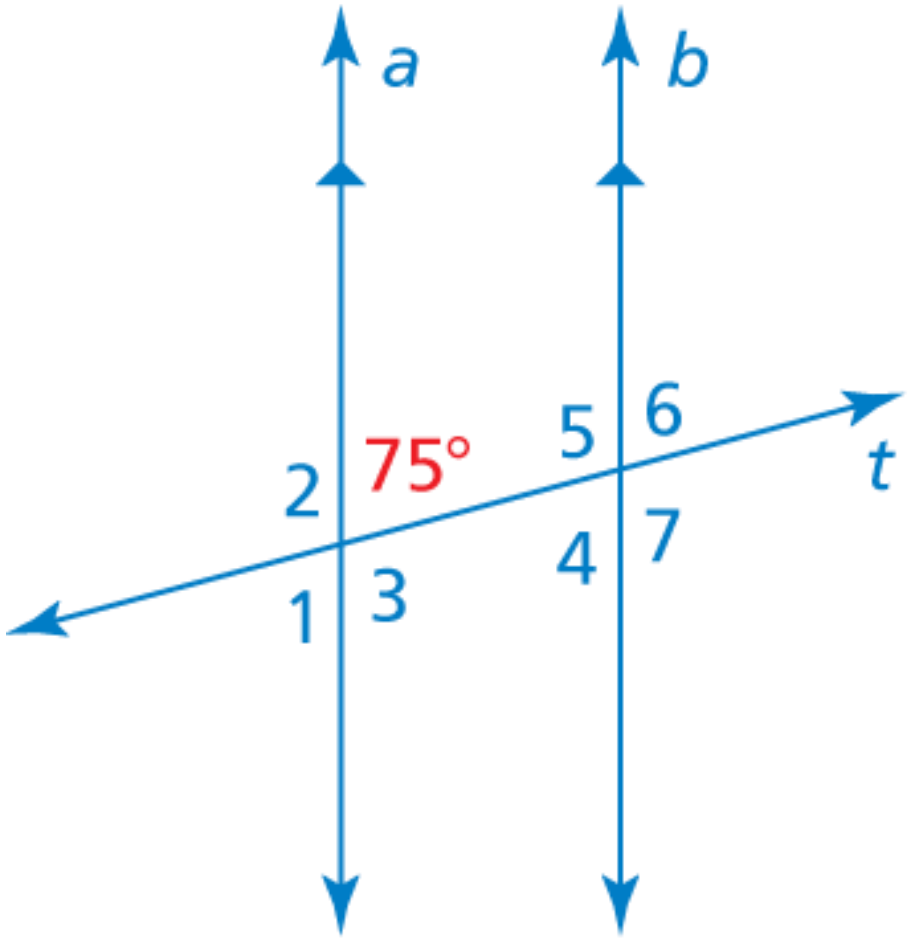


Use the figure to find the measures of (a) $\angle 1$ and (b) $\angle 2$.

a.

b.

Use the figure to find the measures of the numbered angles.



The photo shows a portion of an airport. Describe the relationship between each pair of angles.

a. $\angle 3$ and $\angle 6$

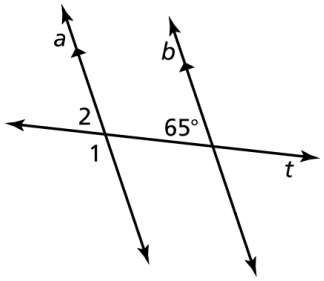
b. $\angle 2$ and $\angle 7$

Name_____ Date _____

Classwork-- Parallel Lines and Transversals

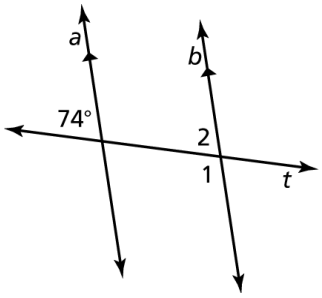
Use the figure to find the measures of the numbered angles.

1.



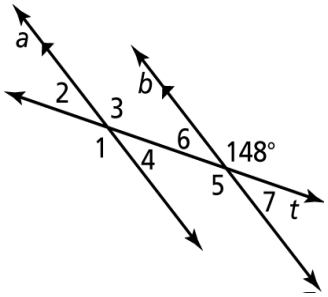
Ð1 = _____ Ð2 = _____

2.



Ð1 = _____ Ð2 = _____

3. Use the figure to find the measures of the numbered angles. Explain your reasoning.



Ð1 = _____ Ð2 = _____ Ð7 = _____

Ð3 = _____ Ð4 = _____

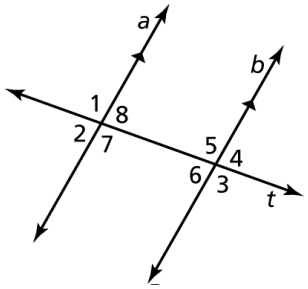
Ð5 = _____ Ð6 = _____

4. If the measure of $\angle 1 = 160°$, then the measure of Ð5 = _____

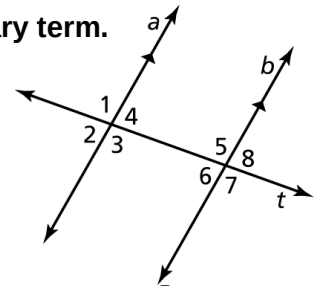
5. If the measure of $\angle 6 = 37°$, then the measure of Ð4 = _____

6. If the measure of $\angle 8 = 82°$, then the measure of Ð3 = _____

7. If the measure of $\angle 4 = 60°$, then the measure of Ð5 = _____



Use the picture below to fill in the blanks with the correct vocabulary term.



8. $\angle 2$ is _____to $\angle 4$.

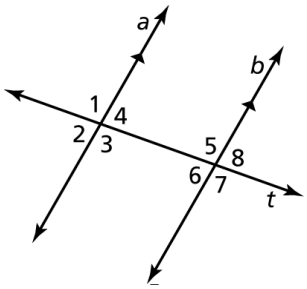
$\angle 4$ is _____to $\angle 8$.

So, $\angle 2$ is _____to $\angle 8$.

9. $\angle 6$ is _____to $\angle 3$.

$\angle 3$ is _____to $\angle 1$.

So, $\angle 6$ is _____to $\angle 1$.



10. If a transversal intersects two parallel lines, is it possible for all of the angles formed to be acute angles? Explain.