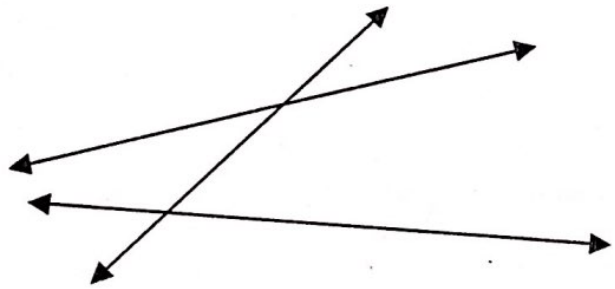
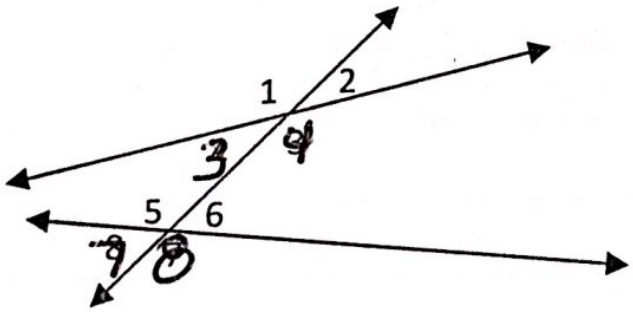
3-2 Parallel Lines And Transversals

1. Use a <u>straightedge</u> to draw two lines (not parallel) similar to those below.

2. Draw a <u>transversal</u> through the lines, similar to the one below.



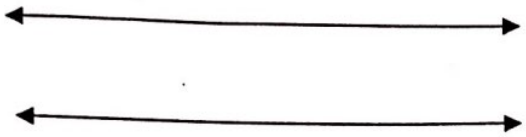
3. Label the angles as shown below.



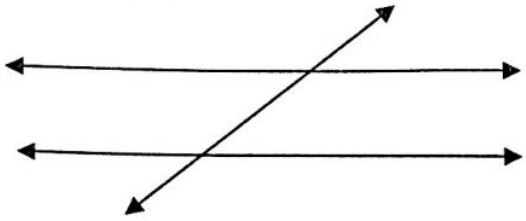
4. Use a <u>protractor</u> to measure each angle. Make a chart of the measurements.

5. Describe any relationship between <u>corresponding angles</u>, <u>alternate interior angles</u>, <u>alternate exterior angles</u>, and/or <u>consecutive interior angles</u>.

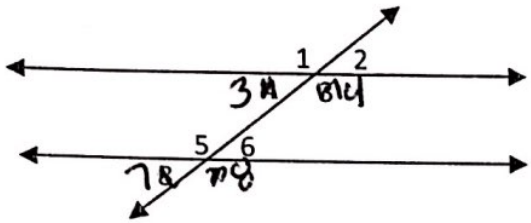
1. Use a straightedge to draw two parallel lines as shown below.



2. Draw a transversal similar to the one below.



3. Label the angles as shown below.

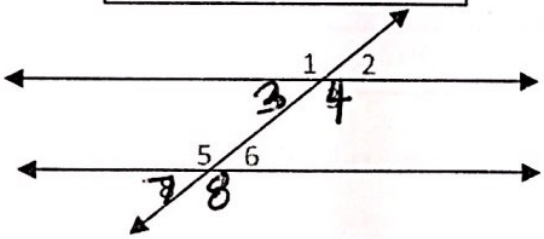


4. Use a protractor to measure each angle. Make a chart of the measurements.

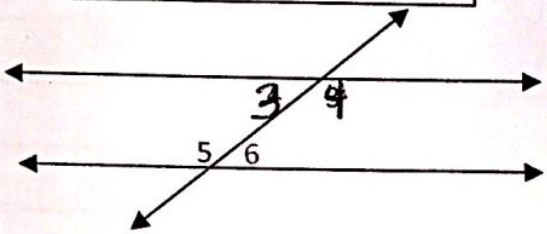
5. Describe any relationship between corresponding angles, alternate interior angles, alternate exterior angles, and consecutive interior angles.

6. Write these descriptions in **If/Then** form on your foldable

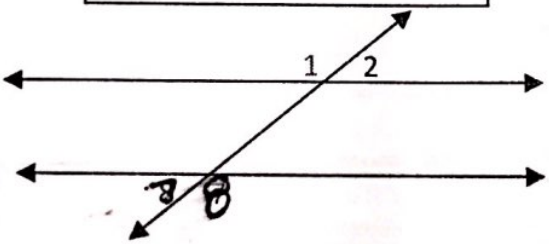
Corresponding Angles



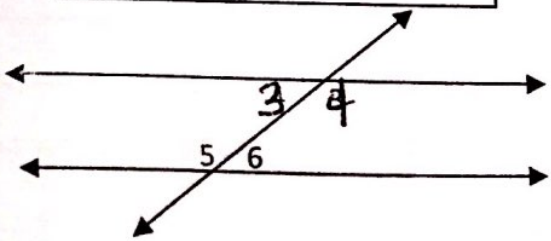
Alternate Interior Angles



Alternate Exterior Angles



Consecutive Interior Angles

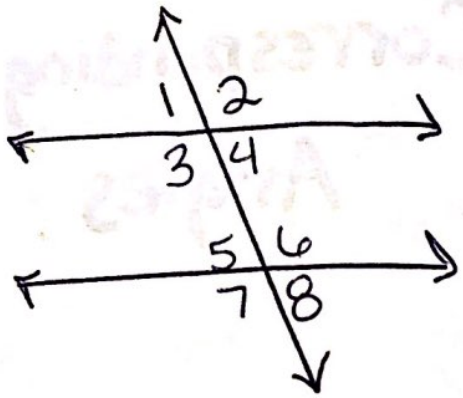


Corresponding Angles

Alternate Interior Angles

Alternate Exterior Angles

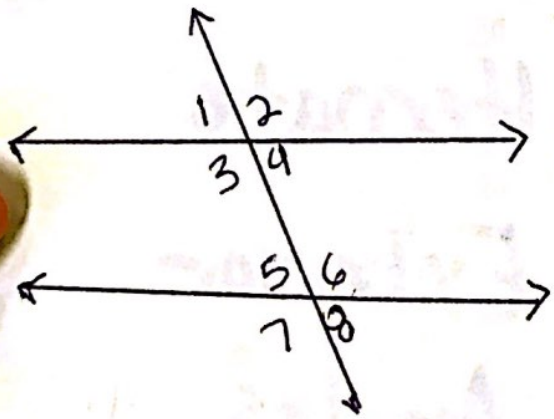
Consecutive Interior Angles



Corresponding Angles

Corresponding positions
$\angle 1$ & $\angle 5$, $\angle 2$ & $\angle 6$, $\angle 3$ & $\angle 7$
$\angle 4$ & $\angle 8$

If lines are //, then corresponding angles are =.



Alternate Exterior Angles

Outside the two lines on opposite sides of the transversal
$\angle 2$ & $\angle 7$, $\angle 1$ & $\angle 8$

If lines are //, then alternate exterior angles are =.

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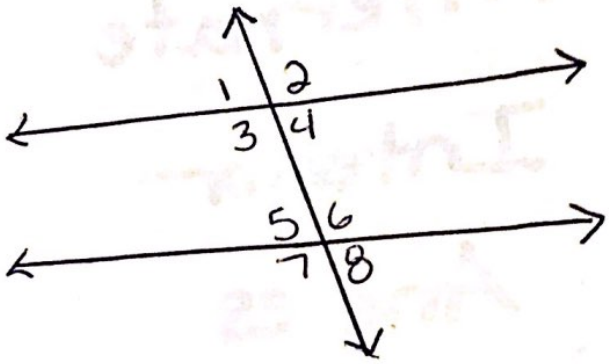
Alternate Interior Angles

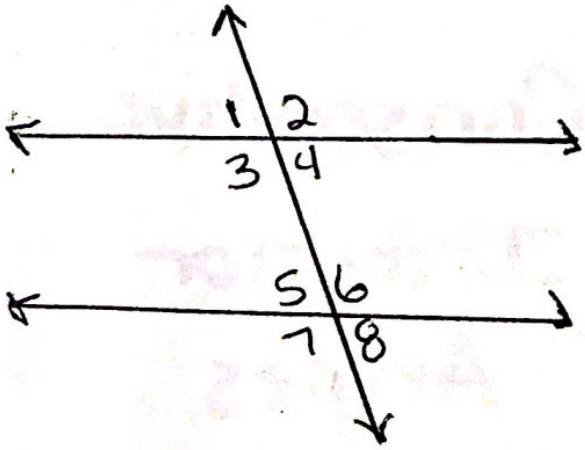
lie between the two lines on opposite sides of the transversal
∠4 & ∠5, ∠3 & ∠6



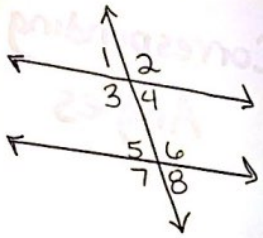
If lines are //, then alternate interior angles are =.

Consecutive Interior Angles

lie between the two lines on the same side of the transversal.
∠3 & ∠5, ∠4 & ∠6



If lines are //, then consecutive interior angles are supplementary.



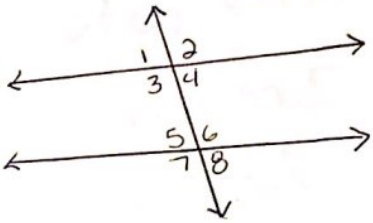
Corresponding Angles

Corresponding positions
$\angle 1$ & $\angle 5$, $\angle 2$ & $\angle 6$, $\angle 3$ & $\angle 7$
$\angle 4$ & $\angle 8$

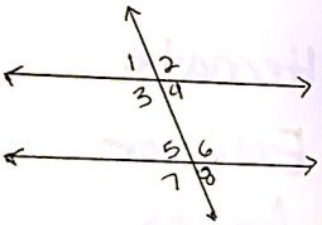
If lines are //, then corresponding angles are =.

Alternate Interior Angles

lie between the two lines on opposite sides of the transversal
$\angle 4$ & $\angle 5$, $\angle 3$ & $\angle 6$



If lines are //, then alternate interior angles are =.



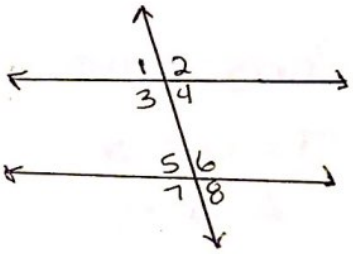
Alternate Exterior Angles

Outside the two lines on opposite sides of the transversal
$\angle 2$ & $\angle 7$, $\angle 1$ & $\angle 8$

If lines are //, then alternate exterior angles are =.

Consecutive Interior Angles

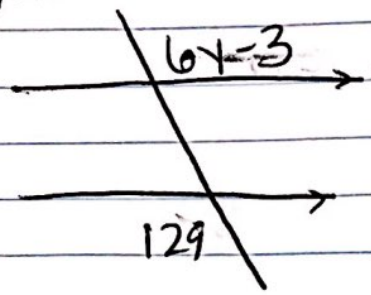
lie between the two lines on the same side of the transversal.
$\angle 3$ & $\angle 5$, $\angle 4$ & $\angle 6$



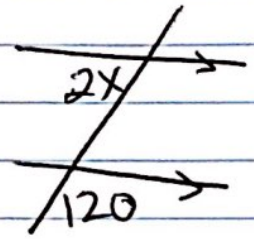
If lines are //, then consecutive interior angles are supplementary.

DC
ex example 3
ex example 2
example 4

Alternate Exterior ∠s

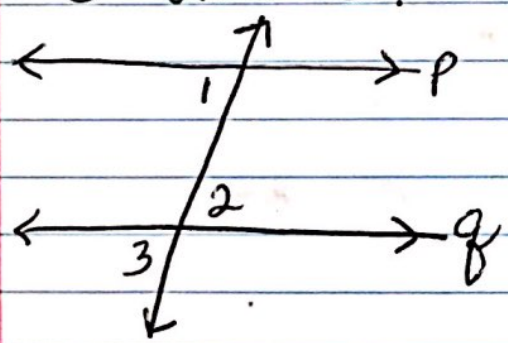
1) 

$$6y-3=129$$
$$+3 \quad +3$$
$$\frac{6y}{6}=\frac{132}{6}$$
$$\boxed{y=22}$$

2) 

$$2x+120=180$$
$$-120 \quad -120$$
$$\frac{2x}{2}=\frac{60}{2}$$
$$\boxed{x=30}$$

3) If two parallel lines are cut by a transversal, Prove alternate interior ∠s are ≅.



Given: p∥q
Prove: ∠1 ≅ ∠2

S	R
1) p∥q	1) given
2) ∠1 ≅ ∠3	2) corresponding ∠s are ≅
3) ∠3 ≅ ∠2	3) vertical ∠s
4) ∠1 ≅ ∠2	4) transitive