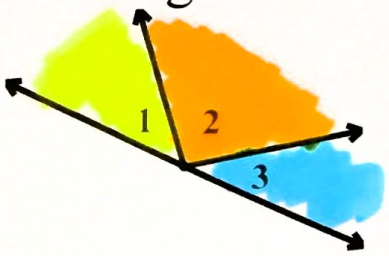
Notes 7-1

Int 2 **Parallel Lines & Transversals** **Unit 7**

Vocabulary:

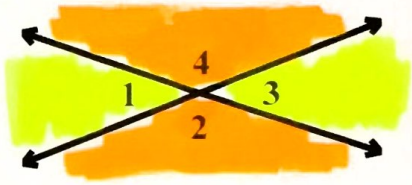
- Adjacent Angles: Two angles that are "next door neighbors". They share the same ray (or fence).



$\angle 1$ & $\angle 2$

$\angle 2$ & $\angle 3$

- Vertical Angles: Two angles directly opposite each other when two **straight** lines cross.

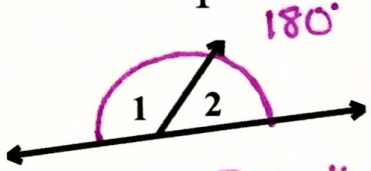


$\angle 1$ & $\angle 3$ ALWAYS =

$\angle 4$ & $\angle 2$ Congruent $\cong$

- Supplementary Angles: Two or more angles that add up to **180°** or form a **straight** line.

$\angle 1 + \angle 2 = 180°$



"Linear Pair"

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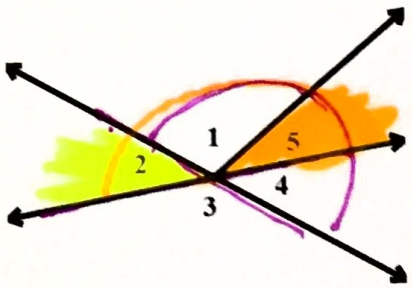
1. Identify ~~two~~ one pairs of vertical angles.



$\angle 2$ & $\angle 4$

2. Identify a set of supplementary angles.

$\angle 1 + \angle 5 + \angle 4 = 180°$ $\angle 3 + \angle 2 = 180°$

$\angle 3 + \angle 4 = 180°$ $\angle 2 + \angle 1 + \angle 5 = 180°$

3. Identify a set of adjacent angles.

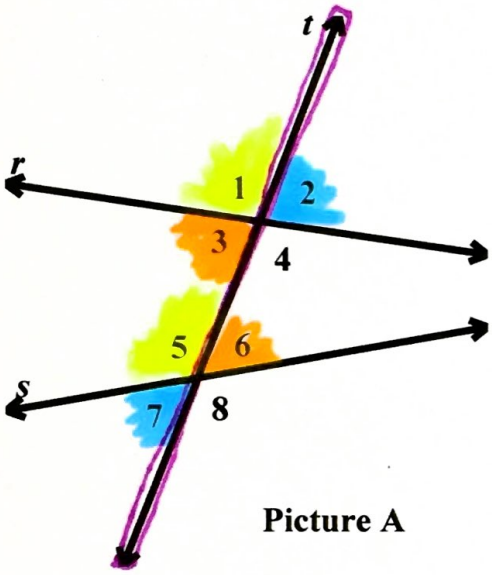
$\angle 1$ & $\angle 5$ $\angle 1$ & $\angle 2$ $\angle 5$ & $\angle 4$

Notes 7-1

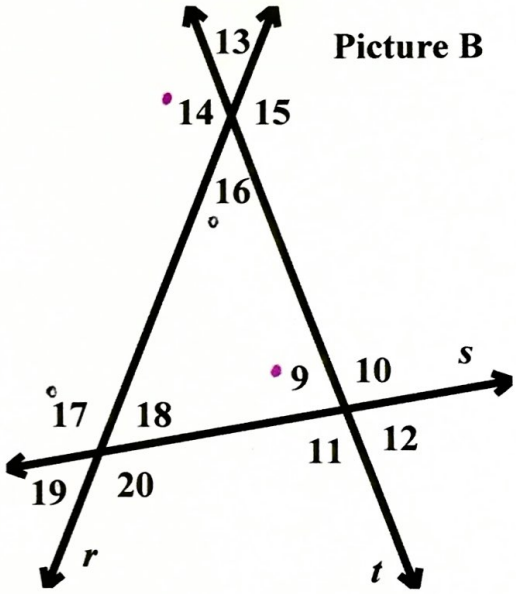
Int 2 **Parallel Lines & Transversals** **Unit 7**

Vocabulary – Transversal

a single, straight line that crosses two lines at different points (2 intersections)



Picture A



Picture B

Vocabulary – Corresponding Angles:

Angles that occupy corresponding (matching) positions in each intersection and on the same side of the transversal.

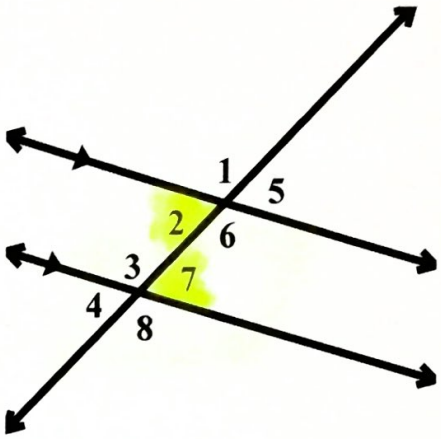
Vocabulary – Alternate Interior Angles:

Angles on the opposite side of the transversal and inside the two lines. (1 angle from each intersection)

Vocabulary – Alternate Exterior Angles:

Angles on the opposite side of the transversal and outside the two lines. (1 angle from each intersection)

Parallel Lines, Transversals & Congruency



- **Alternate Interior Angles:**
  Congruent $\cong$
- **Alternate Exterior Angles:**
  $\cong$
- **Corresponding Angles:**
  $\cong$

] When the lines are parallel

- **Vertical Angles:**
  $\cong$

Ex. 1: Identify the measure of each angle given that $m\angle 1 = 95^\circ$. Justify your answer with the angles and relationship.

$m\angle 8 = 95^\circ$ Alt Ext $\angle$

$\angle 3 = 95^\circ$ corr ; vert $\angle$

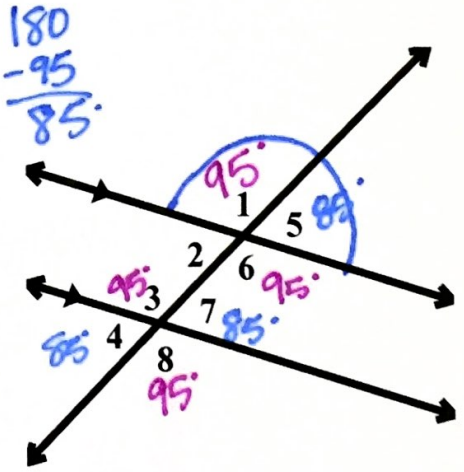
$\angle 6 = 95^\circ$ vert $\angle$

$m\angle 5 = 85^\circ$ supp

$\angle 7 = 85^\circ$ corr

$\angle 4 = 85^\circ$ supp

$\angle 2 = 85^\circ$ Alt Int



Notes 7-1
Parallel Lines & Transversals

Ex. 1: List all pairs of angles that fit the description.

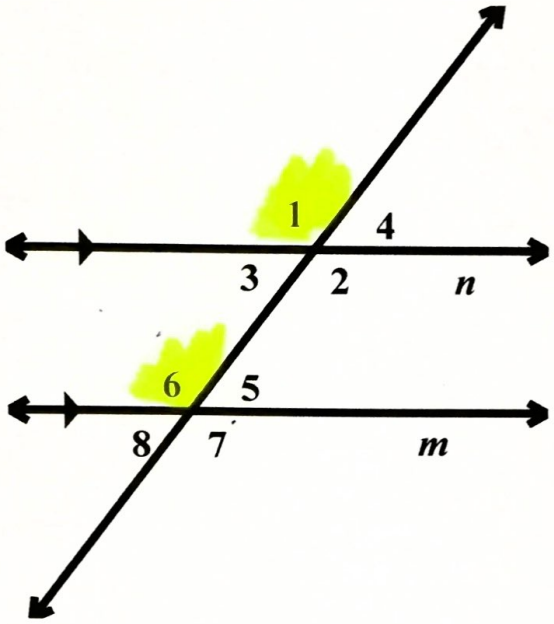
a. Corresponding

∠1 ≅ ∠6

∠3 ≅ ∠8

∠2 ≅ ∠7

∠4 ≅ ∠5



b. Alternate Exterior

∠1 ≅ ∠7

∠4 ≅ ∠8

c. Alternate Interior

∠3 ≅ ∠5

∠2 ≅ ∠6

d. Vertical

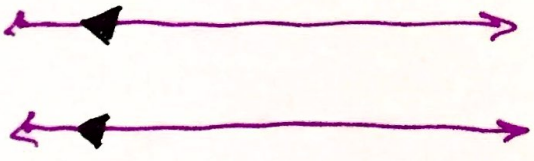
∠1 ≅ ∠2 ∠6 ≅ ∠7

∠3 ≅ ∠4 ∠5 ≅ ∠8

Vertical Angles are ALWAYS **equal!!!**

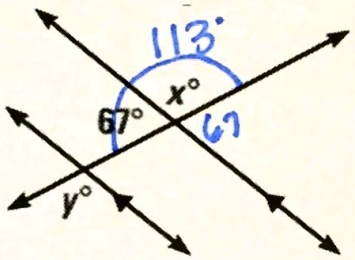
Vocabulary – Parallel Lines:

Lines that go forever and never cross.



Find the value of x and y.

Ex. 2:

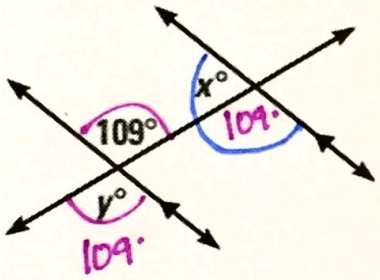


180
−67
113

$x = 113°$ Supp

$y = 113°$ Alt ext ∠

Ex. 3:

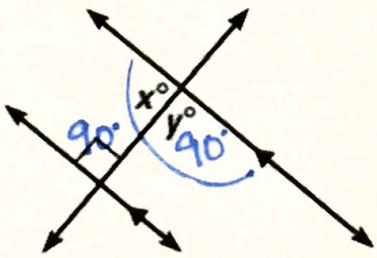


180
−109
71

$y = 109°$ vert ∠

$x = 71°$ Alt int ; Supp

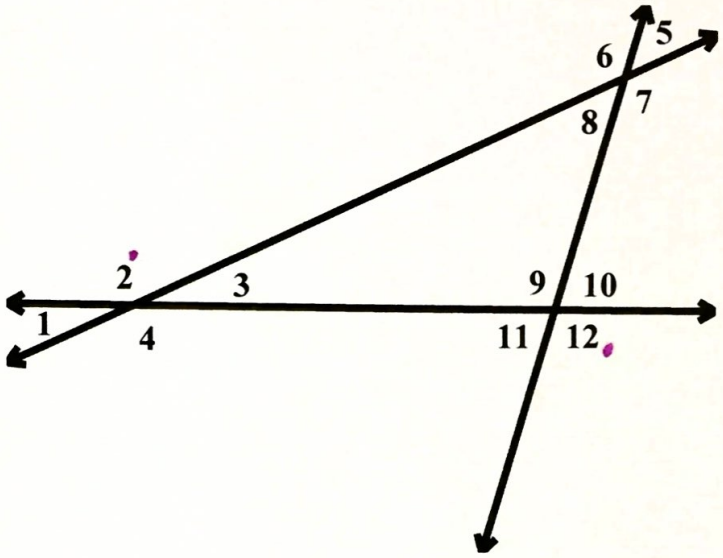
Ex. 4:



$y = 90°$ Alt int ∠

$x = 90°$ Supp

Classify each pair of angles and *alternate interior, alternate exterior, corresponding, vertical,* or *neither.*



Ex. 6: ∠ 2 and ∠ 12

Alt Ext ∠

Ex. 7: ∠ 5 and ∠ 8

vert

Ex. 8: ∠ 6 and ∠ 9

Corr

Ex. 9: ∠ 2 and ∠ 8

Alt int

Ex. 10: ∠ 4 and ∠ 1

neither

Ex. 11: ∠ 4 and ∠ 11

neither