Winston

2.2 Parallel Lines and Transversals Guided Notes **Geometry**

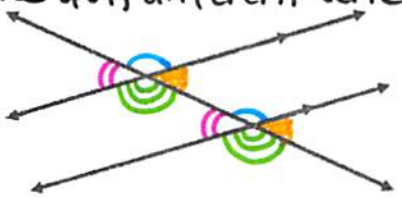
Two or more lines are parallel if and only if they are in the same plane and they do not intersect.

A transversal is a line intersecting **two** or **more** coplanar lines.

Angle Relationships formed with ∥ Lines:

Corresponding ∠'s ≅

*Same spot, different vertex!



Corr. ∠'s Postulate:
If 2 ∥ lines are cut by a transversal, then

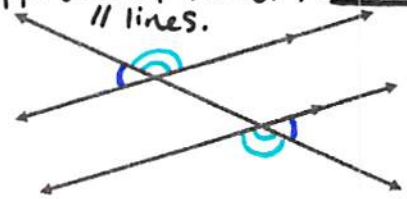
Alternate Interior ∠'s ≅

* opp. side of transversal & inside ∥ lines.

Alt. Int. ∠'s Theorem:
If 2 ∥ lines are cut by a transversal, then

Alternate Exterior ∠'s ≅

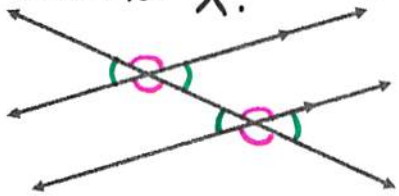
*opp. side of trans. & outside ∥ lines.



Alt. Ext. ∠'s Theorem:
If 2 ∥ lines are cut by a transversal, then

Vertical ∠'s ≅ Vertical Angles

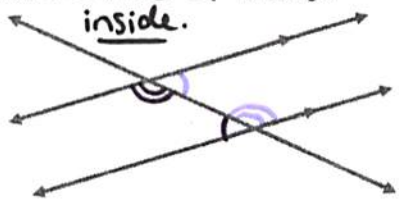
*look for X.



Vert. ∠'s Theorem:

Same Side Interior ∠'s Supplementary (add to equal 180°)

*same side of trans. inside.



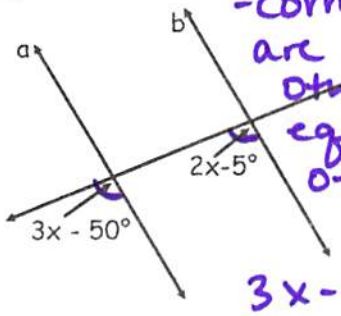
Same Side. Int. ∠'s Theorem:
If 2 ∥ lines are cut by a transversal, then

Linear Pair:
*angles next to each other that make a straight line. (supp).

Problem Solving with Angles:

In problems 1 – 2, assume $a \parallel b$. Find the value of x. Then, find the measure of each angle.

1.



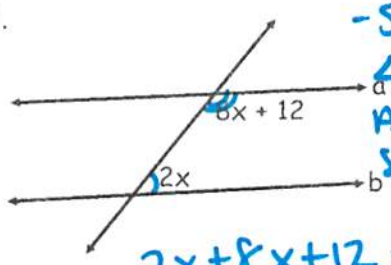
-corresponding ∠'s are ≅ to each other. Set ∠'s equal to each other.

$3x - 50 = 2x - 5$
$+50 \quad +50$
$3x = 2x + 45$
$-2x \quad -2x$

$\boxed{m\angle = 85°}$

$\boxed{x = 45}$

2.



-Same side int ∠'s are supp. Add both ∠'s & set equal to 180°.

$2x + 8x + 12 = 180$
$10x + 12 = 180$
$-12 \quad -12$
$10x = 168$

$\boxed{x = 16.8}$

$\boxed{m\angle = 33.6}$
$\boxed{m\angle = 146.4}$