

Notes - Geometry Theorems.doc

*** Now that the notes are taken care of...

REVIEW??? GMF 10 - Angle Properties

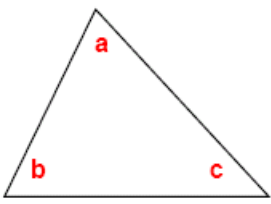
We better do some examples to UNDERSTAND these **BIG** ideas!!!

Geometry Theorems...

SATT

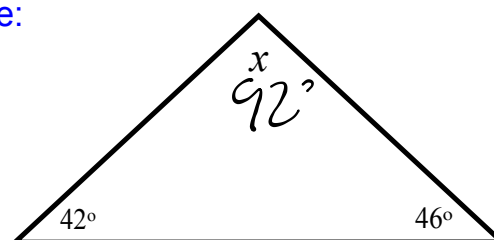
Triangle Angle Sum Theorem:

The sum of the interior angles of any triangle is 180° .



$a + b + c = 180^\circ$

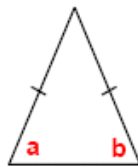
Example:



Isosceles Triangle Theorem:

In an isosceles triangle, the base angles are equal.

The two angles that are opposite to the equal sides.

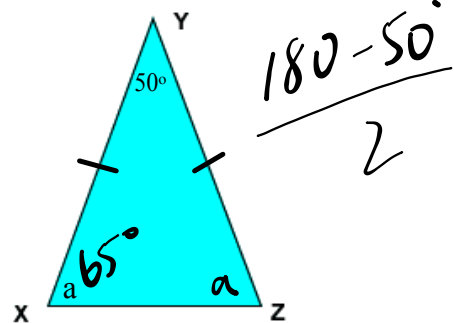


$$a = b$$

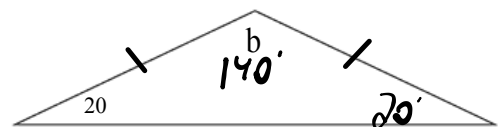
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EXAMPLES...

1)



2)

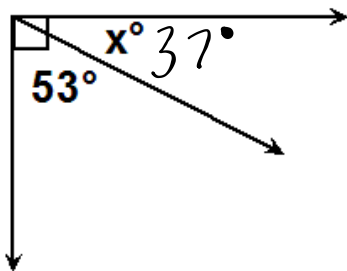


- **Complementary Angles:** *CAT*
Two or more angles that have a sum of 90° .

Examples:

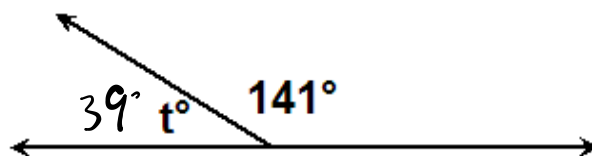
(1) What is the complement of a 50° angle? *40°*

(2) Determine the measure of the missing angle.



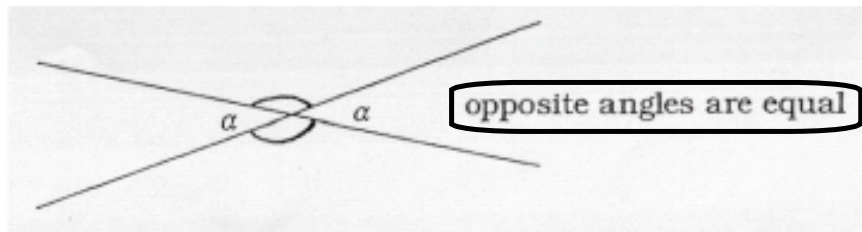
- **Supplementary Angles:** *SAT*
Two or more angles that have a sum of 180° .

Examples:



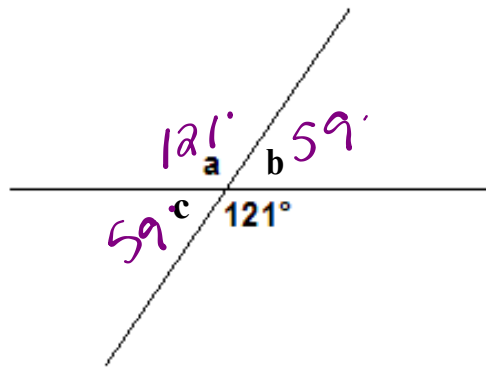
Opposite Angle Theorem... OAT or VOA

When 2 straight lines cross, 2 pairs of opposite angles are formed. Opposite angles are equal in size



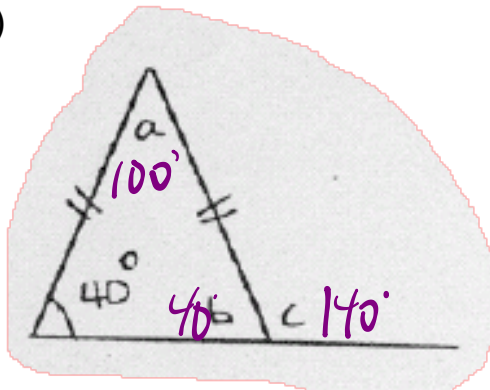
In geometry, angles or lines marked with the same symbol are the same size.

Example:

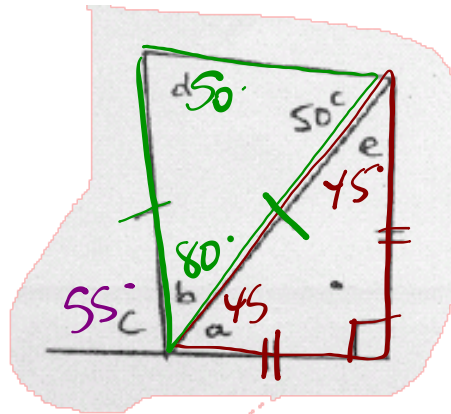


EXERCISE: Use geometry theorems to determine the measure of missing angles...

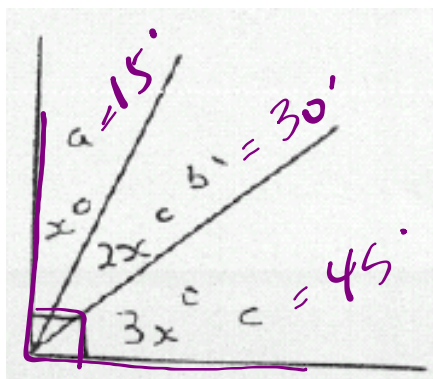
1)



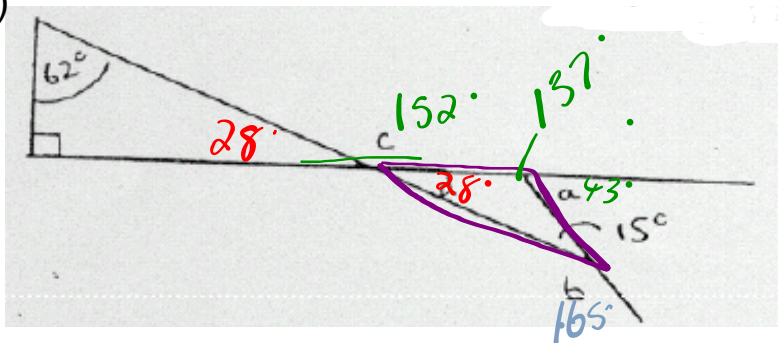
2)



3)



4)



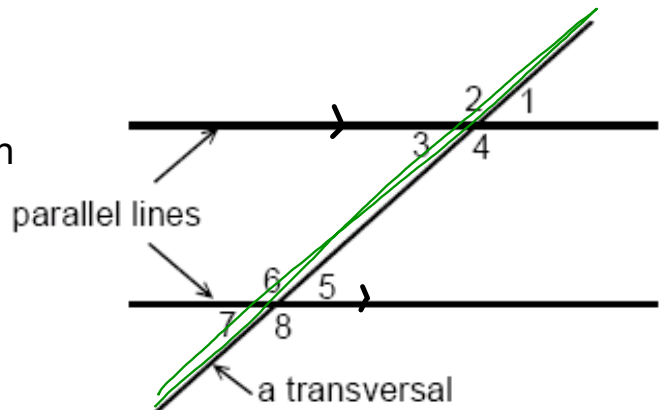
$$x + 2x + 3x = 90$$

$$\frac{6x}{6} = \frac{90}{6}$$

$$x = 15$$

Parallel Line Theorems

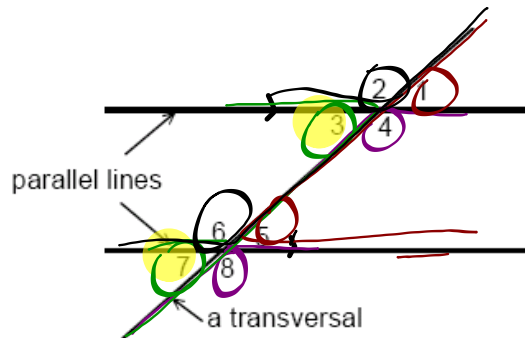
A transversal is a third line that crosses two or more lines, as shown in the illustration to the right.



CA

Corresponding Angles:

Pairs of angles on the same side of a transversal and the same side of the parallel lines

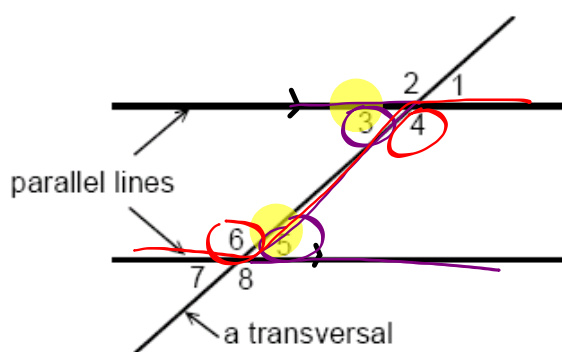


CORRESPONDING ANGLES ARE EQUAL

Alternate Interior Angles:

A I A

Pairs of angles on the opposite sides of a transversal and between the parallel lines

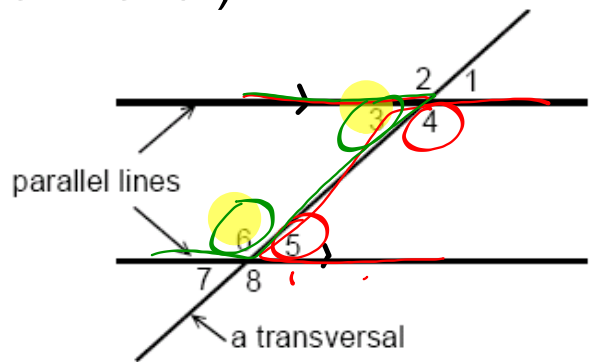


ALTERNATE INTERIOR ANGLES ARE EQUAL

Co-Interior Angles (Same-side Interior):

CIA

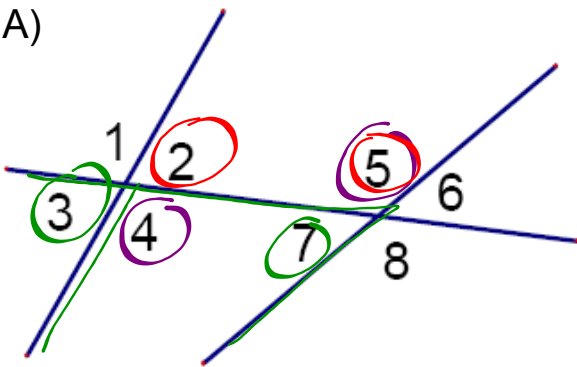
Pairs of angles on the same side of a transversal and between the parallel lines



CO-INTERIOR ANGLES ARE SUPPLEMENTARY

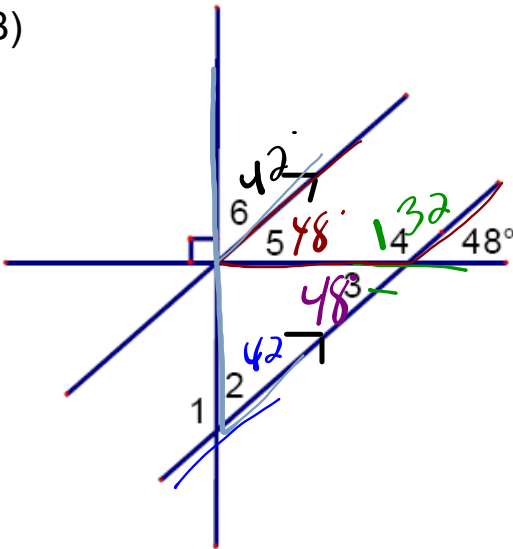
EXERCISE: Practice...

A)



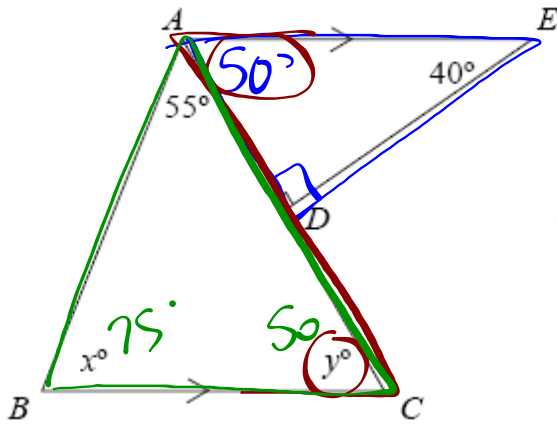
1. $\angle 3$ and $\angle 7$ are corresponding angles.
2. $\angle 4$ and $\angle 5$ are alternate interior angles.
3. $\angle 5$ and $\angle 2$ are same-side interior angles.
CIA

B)



1. $m\angle 1 = 132^\circ$ (SAT)
2. $m\angle 2 = 42^\circ$ (CA)
3. $m\angle 3 = 48^\circ$ (OAT)
4. $m\angle 4 = 132^\circ$ (SAT)
5. $m\angle 5 = 48^\circ$ (LIA)
6. $m\angle 6 = 42^\circ$ (CAT)

C)

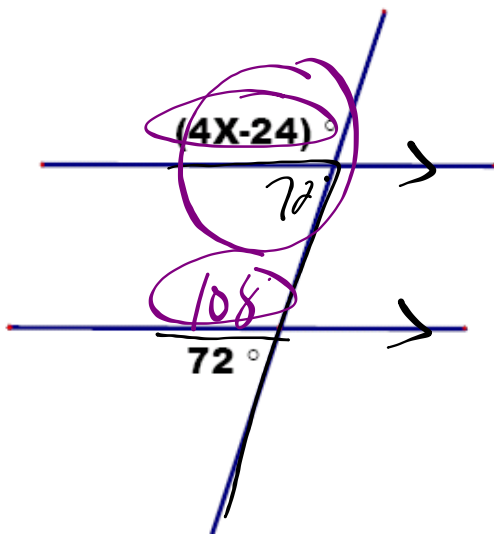


Find x° and y° .

$$x = 75^\circ \text{ (SATT)}$$

$$y = 50^\circ \text{ (AIA)}$$

D)



$$4x - 24 + 72 = 180$$

$$4x + 48 = 180$$


$$4x = 180 - 48$$

$$4x = 132$$

$$x = \frac{132}{4}$$

$$x = 33$$

HOMEWORK...

 Worksheet - Angle Properties.pdf

Attachments

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Worksheet - Angle Properties.pdf