

## UNIT 4 OVERVIEW

I. Proof Properties: explain HOW you solved it.

A. Prop. of Equality: on BOTH SIDES of =

B. Prop. of Congruence: on BOTH SIDES of  $\cong$

C. 6 Basics:

PROP =  
Addition  
Subtraction  
Multiplication  
Division

NOT prop =  
\* Substitution (plugged in)  
\* Simplify (on one side)

D. 2 structural:

1. Reflexive

SAME thing on both sides

2. Symmetric

SWITCH SIDES

II. Distance between 2 points

A. Formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

III. Translate a figure

A. move points by adding (up or right) or subtracting (down or left)

B. UP & DOWN ONLY CHANGE Y

C. RIGHT & LEFT ONLY CHANGE X

IV. Midpoint of 2 points  $(M_x, M_y)$

A. Add x's & divide by 2

$$M_x = \frac{x_1 + x_2}{2}$$

B. Add y's & divide by 2

$$M_y = \frac{y_1 + y_2}{2}$$

V. Complementary vs. Supplementary

A. COMPLEMENTARY  
2 angles + =  $90^\circ$

B. SUPPLEMENTARY  
2 angles + =  $180^\circ$

VI. Bisect: to cut in half

$$B = \frac{\text{whole}}{2}$$

or  $2(B) = \text{whole}$

AND  $B_1 = B_2$   
(parts are equal)

VII. Vertical & Linear Pair Angles

A. Happen when 2 lines CROSS

B. Vertical: Across

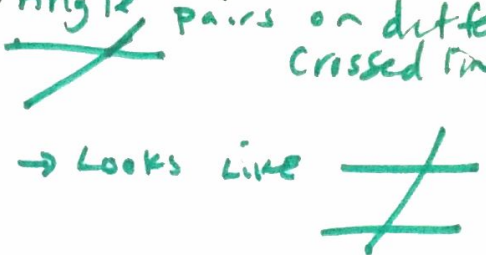


C. Linear Pair: NEXT TO EACH OTHER



# Lines cut by Transversal (through-line)

A. Angle pairs on different crossed lines



## B. Corresponding (matching)



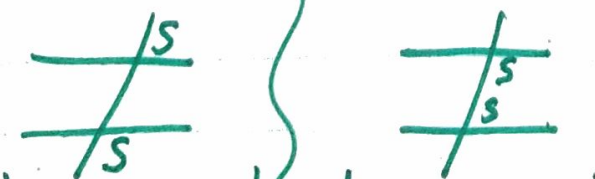
## C. Alternate (opposite)



EXTERIOR

INTERIOR

## D. Same Side (of the through-line)



EXTERIOR

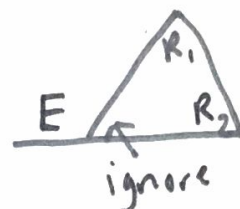
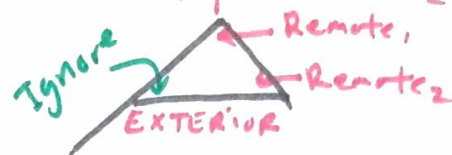
INTERIOR

## IX. EXTERIOR ANGLE OF a triangle



A. Formula

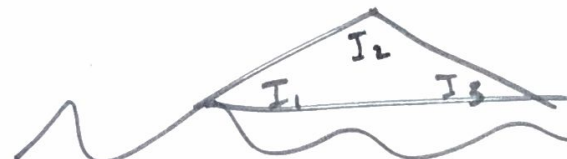
$$\text{Remote}_1 + \text{Remote}_2 = \text{EXT. ANGLE}$$



## X. Triangle Sum (adding the 3 angle)

A. The 3 angles ALWAYS add to equal 180°

$$\text{INTERIOR}_1 + \text{INTERIOR}_2 + \text{INTERIOR}_3 = 180$$



## XI. Pythagorean Theorem

$$a^2 + b^2 = c^2$$

A. Only used in RIGHT as

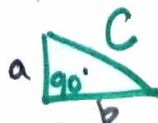


B. Hypotenuse is C ALWAYS

→ the side across from 90

→ "the diagonal side"

→ "the crooked side"



EQUAL EACH OTHER

Add = 180