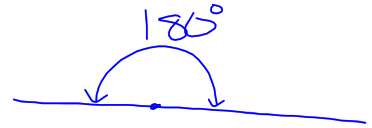
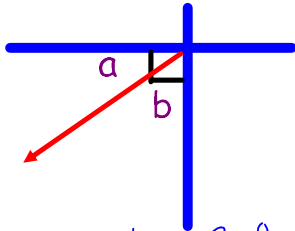


## 5.2 Angle Properties

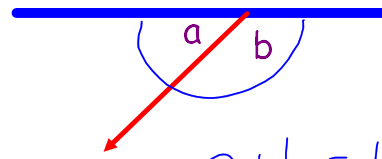
### Type of Angles



### 1) Complementary and Supplementary Angle Theorems



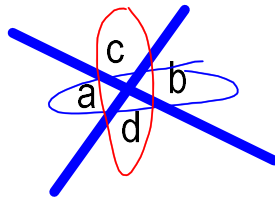
$a + b = 90^\circ$  (CAT)  
Complementary

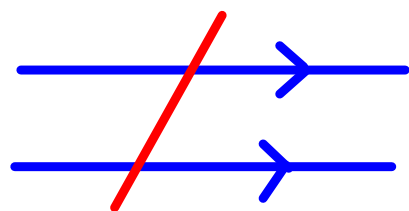


$a + b = 180$   
Supplementary (SAT)

### 2) Opposite Angle Theorem

$a = b$   
 $c = d$   
(OAT)

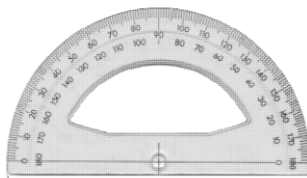
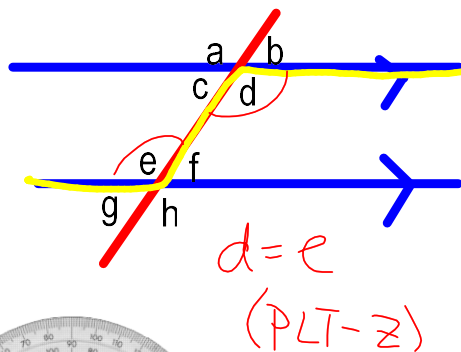
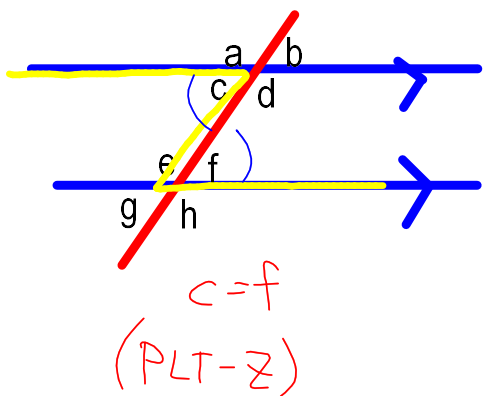




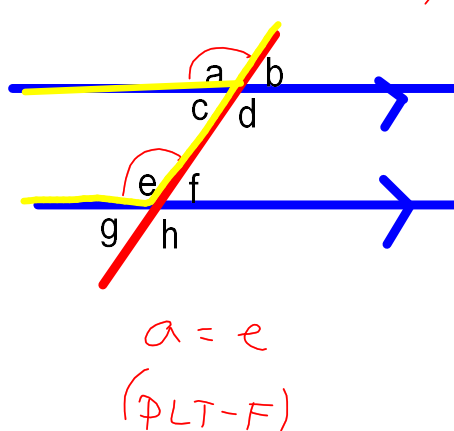
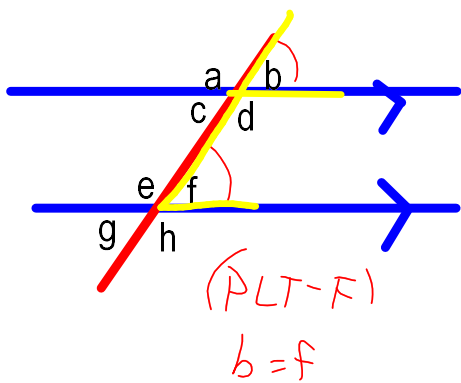
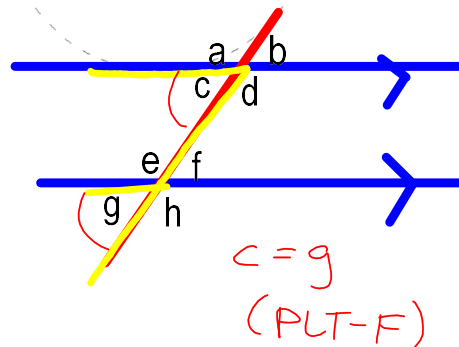
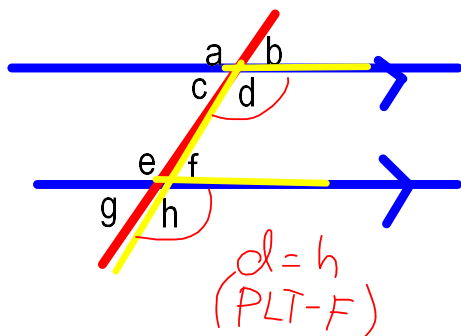
Parallel Lines  
(PLT)

transversal  
(line that intersects 2 lines)

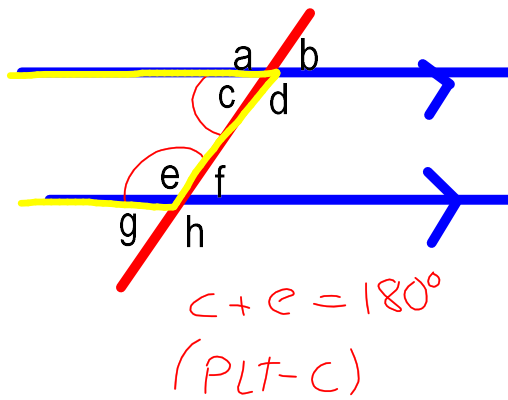
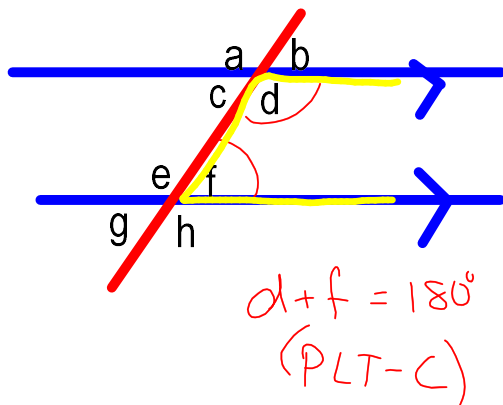
3) Alternate Angles- forms a "Z" pattern



4) Corresponding Angles- Forms an "F" pattern

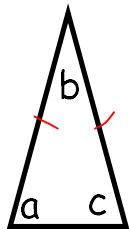


5) Interior Angles- forms a "C" pattern



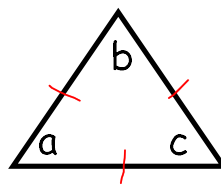
6) Triangles:

Isosceles

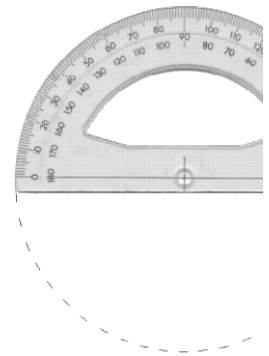


$a = c$  (ITT)

Equilateral



$a = b = c = 60^\circ$   
(ETT)



Ex 1.

Name all

a) interior angles "C"

4, 6

3, 5

b) corresponding angles "F"

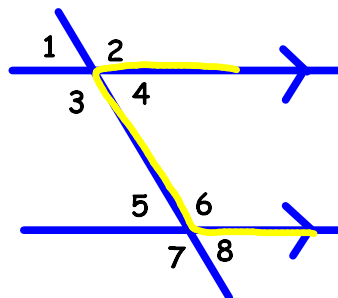
2, 6 1, 5

3, 7 4, 8

c) alternate angles "Z"

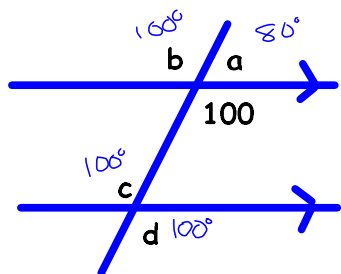
4, 5

3, 6

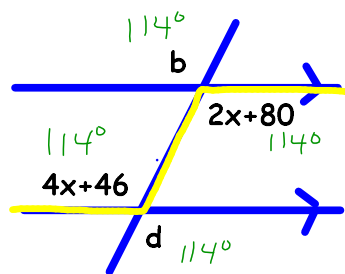


Ex 2.

Find the unknowns



$b = 100^\circ$  (OAT)  
 $a = 80^\circ$  (SAT)  
 $c = 100^\circ$  (PLT-Z)  
 $d = 100^\circ$  (OAT)



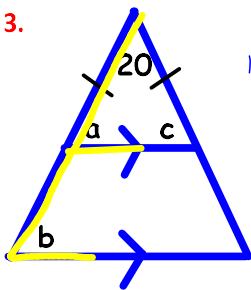
$4x + 46 = 2x + 80$  (PLT-Z)  
 $4x - 2x = 80 - 46$   
 $\frac{2x}{2} = \frac{34}{2}$   
 $x = 17$

$2x + 80$  ?

Sub  $x = 17$   
 $= 2(17) + 80$   
 $= 34 + 80$   
 $= 114^\circ$

$b = 114^\circ$  (OAT)  
 $d = 114^\circ$  (OAT)

Ex 3.



$20^\circ + a + c = 180^\circ$   
 OR  
 $180 - 20$   
 $= \frac{160}{2}$  ?

$a = 80^\circ$  (ITT)  
 $c = 80^\circ$  (ITT)

$b = 80^\circ$  (PLT-F)