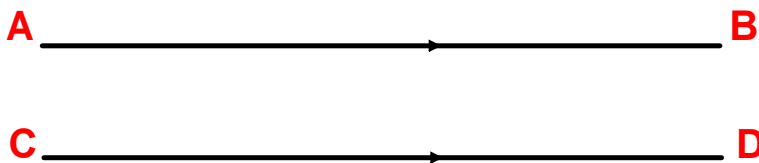


## Parallel Lines

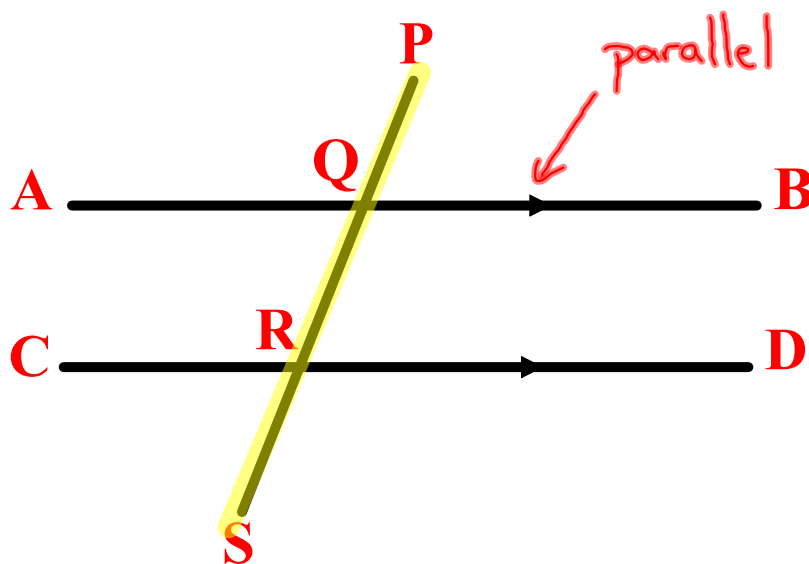
If two lines are in the same *plane* and do not intersect, then the lines are said to be parallel.



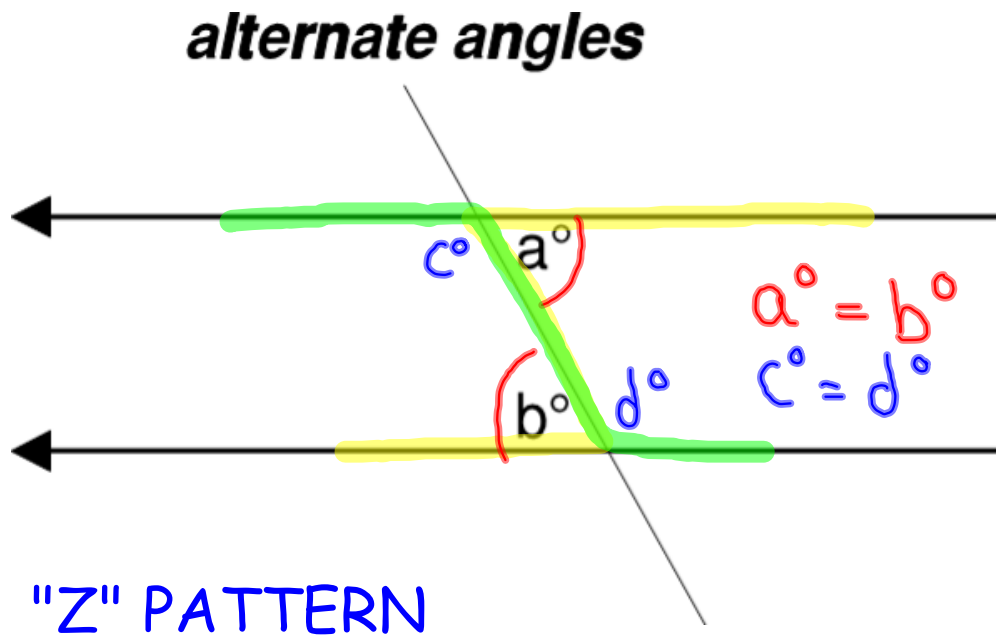
For example, **AB** is parallel to **CD** and we write it as **AB** || **CD**.

A line that meets two or more parallel lines is called a transversal.

Line **PQRS** in the following diagram is a *transversal*.



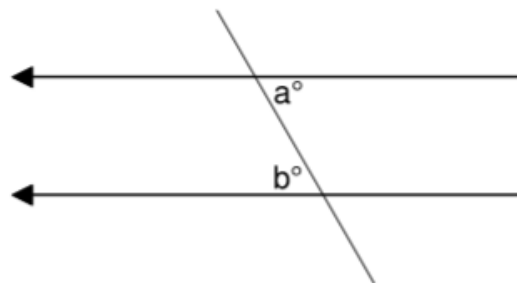
★ Alternate Angles are EQUAL



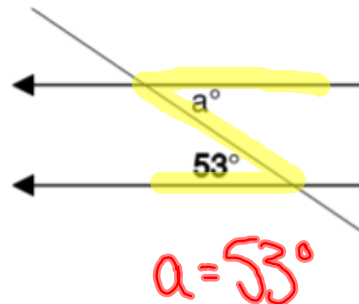
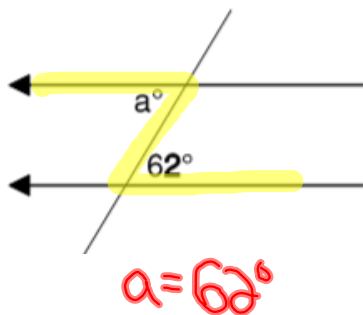
## Angles and lines 2



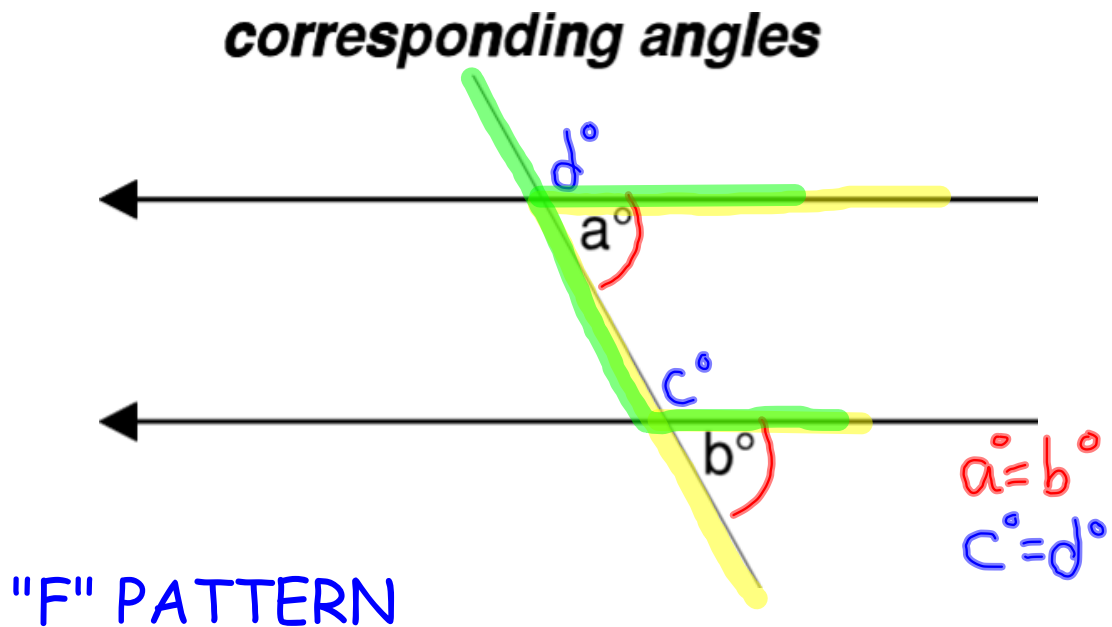
$\angle a^\circ$  and  $\angle b^\circ$  are called **alternate angles**.  
They are equal angles.  
 $a^\circ = b^\circ$



Now calculate the marked alternate angles.



# ★ Corresponding Angles are EQUAL

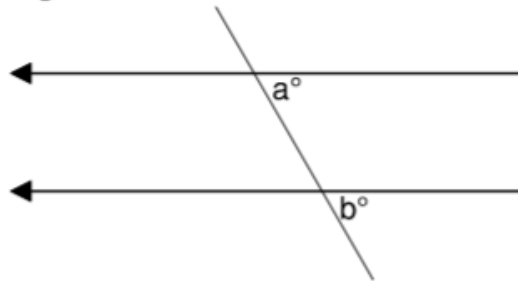


## Angles and lines 2

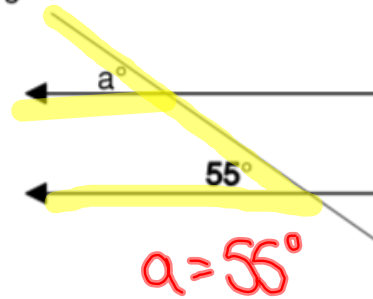
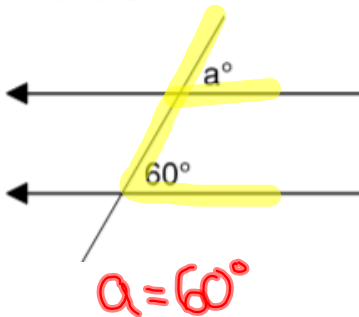


$\angle a^\circ$  and  $\angle b^\circ$  are called **corresponding angles**.  
They are equal angles.

$$a^\circ = b^\circ$$



Now calculate the marked corresponding angles.

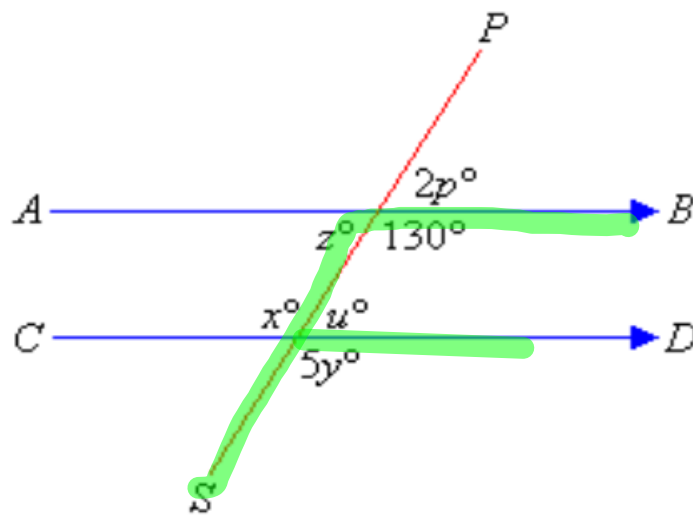




**Example 1:** Use the information given in the diagram to find:

- a.  $x = 130^\circ$
- b.  $y = 26^\circ$
- c.  $z = 50^\circ$
- d.  $u = 50^\circ$
- e.  $p = 25^\circ$

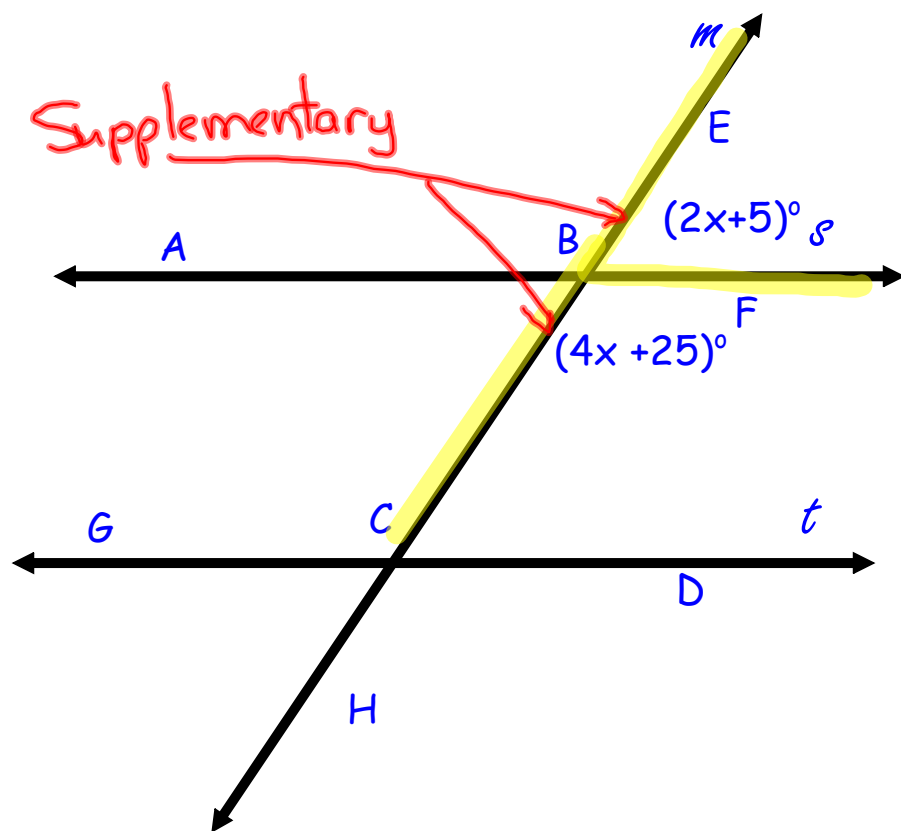
$$2p = 50^\circ$$
$$p = 25^\circ$$



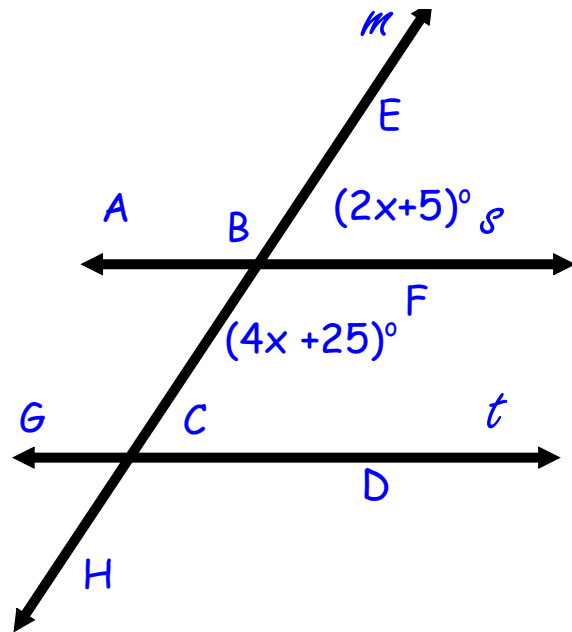
$$5y = 130$$
$$y = 26$$



**Example 2:** In this figure  $s \parallel t$ , and  $m$  is the transversal.  
Find the measure of  $\angle EBF$ .



**Solution:** The angles are supplementary.



Write the equation,  $(2x+5)+(4x+25) = 180$ .

Combine like terms,  $6x+30=180$

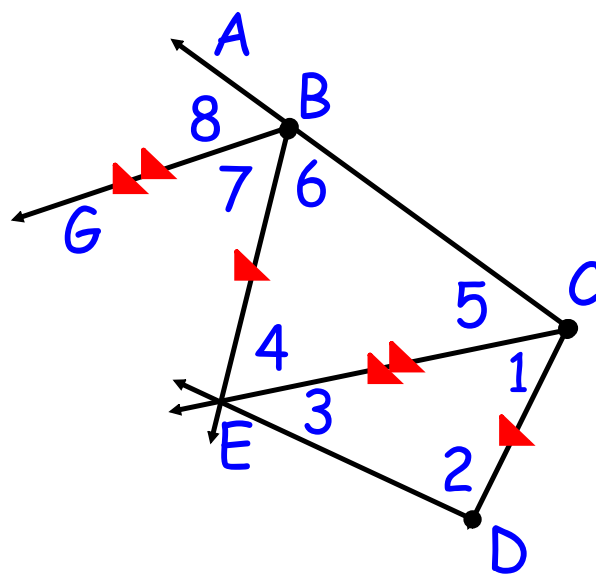
subtract 30 from both sides,  $6x=150$

divide by 6,  $x = 25$

Find the measure of  $\angle EBF$ .  $2(25) + 5 = 55^\circ$

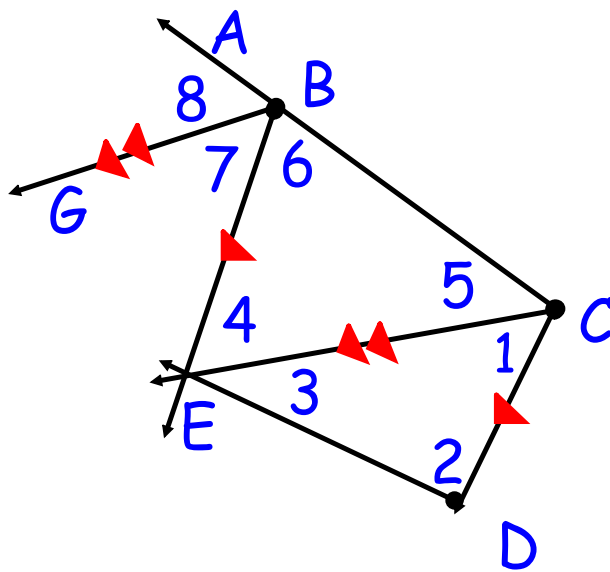
**Example 3:**  $BG$  bisects  $\angle EBA$ , &  $\angle 8 = 42^\circ$ , &  $\angle 3 = 18^\circ$ . Find the missing measures of the angles.

▲ tells you they are parallel

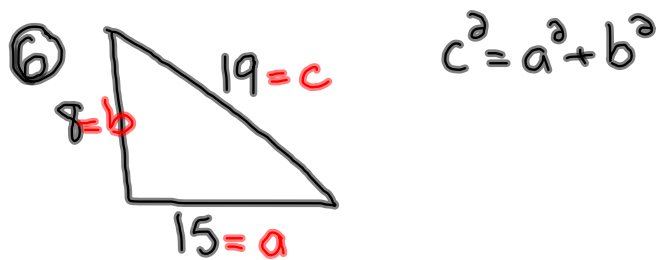


- 1.
- 2.
3.  $18^\circ$
- 4.
- 5.
- 6.
- 7.
8.  $42^\circ$

**Solution:**  $BG$  bisects  $\angle EBA$ , &  $\angle 8 = 42^\circ$ , &  $\angle 3 = 18^\circ$ . Find the missing measures of the angles.



1.  $42^\circ$
2.  $120^\circ$
3.  $18^\circ$
4.  $42^\circ$
5.  $42^\circ$
6.  $96^\circ$
7.  $42^\circ$
8.  $42^\circ$



LS	RS
$c^2$	$a^2 + b^2$
$(19)^2$	$(15)^2 + (8)^2$
361	$225 + 64$
	289

Since the  $LS \neq RS$   
it is not a right  
triangle