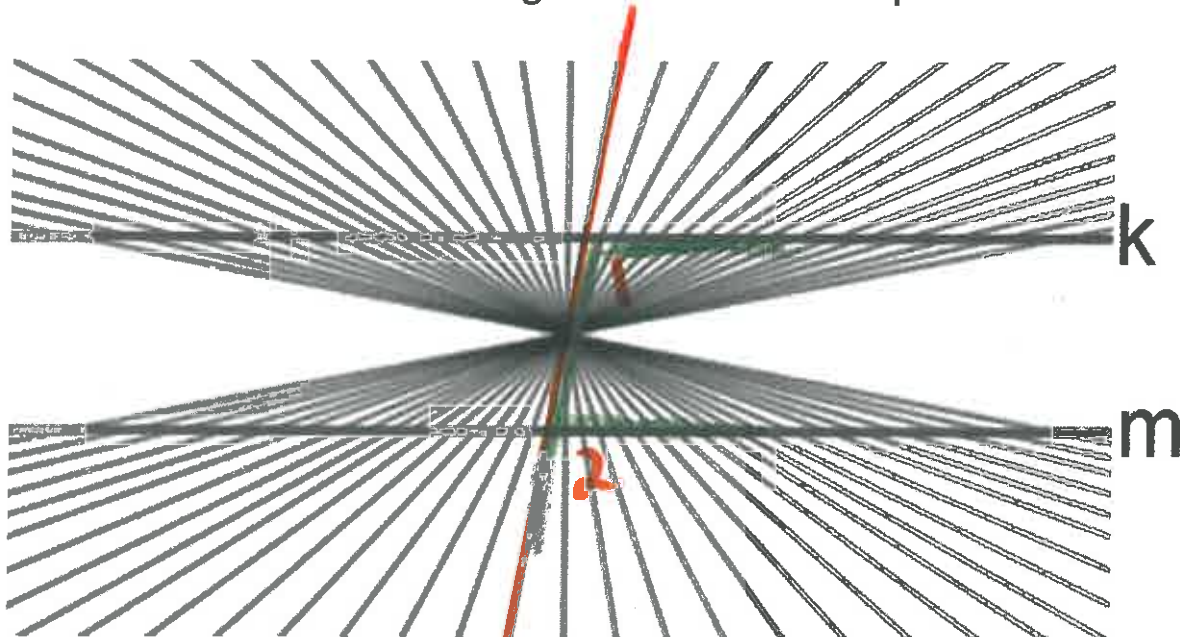


Proving Lines Parallel

Are lines m & k straight? Are lines m & K parallel?



Since $\angle 1 \cong \angle 2$ (corr. angles)
then $m \parallel k$.

If 2 lines are cut by a transversal with...

Alt. int / Alt. Ext.
Angles \cong

OR

corr. \angle 's \cong

then

the lines are \parallel .

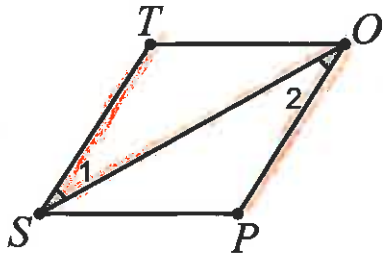
OR

Same side int supp /
Same side Ext supp.

Example: Based on the given angles in each picture:

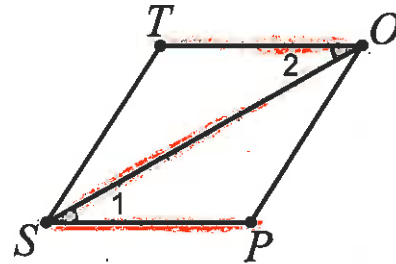
- State which lines are parallel.
- State the reason why the lines are parallel.

1.



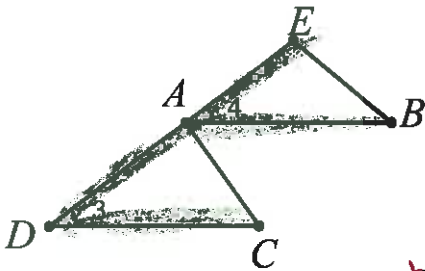
$\overline{ST} \parallel \overline{PO}$
~~2 lines~~ 2 lines cut by trans with
 alt. int. \angle 's \cong are \parallel .

2.



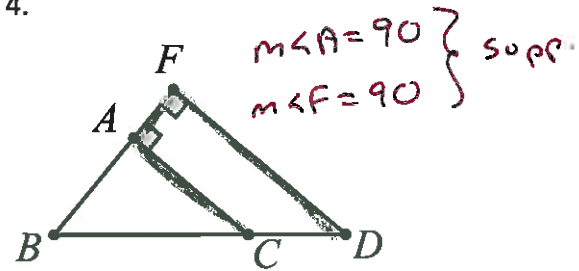
$\overline{TO} \parallel \overline{PS}$ 2 lines cut by a trans.
 with Alt. int. \angle 's \cong are \parallel .

3.



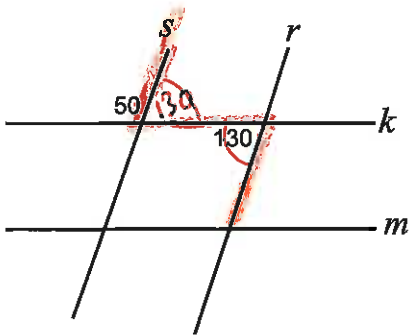
$\overline{AB} \parallel \overline{DC}$ 2 lines cut by trans.
 alt. int. \angle 's are \cong .

4.



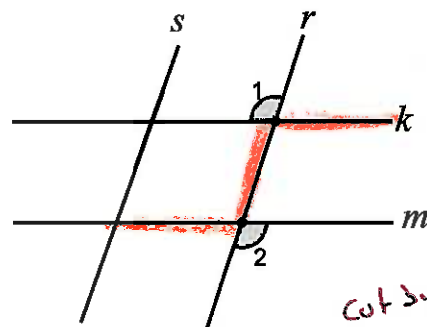
$\overline{AC} \parallel \overline{FD}$ 2 lines cut by trans
 are \parallel when same side int. \angle 's
 are supp.

5.



$s \parallel r$ 2 lines cut by a trans
 are \parallel when alt. int.
 \angle 's are \cong .

6.



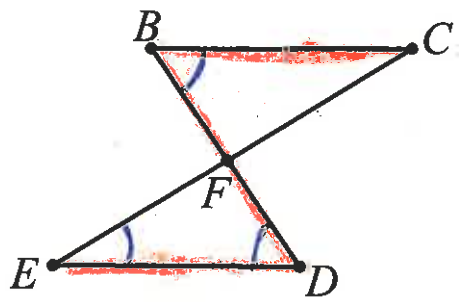
$k \parallel m$ 2 lines cut by trans.
 alt. ext. \angle 's are \cong .

Two - Column Proof:

1. Given: $\angle E \cong \angle B$

think: $\angle E \cong \angle D$

Prove: $\overline{BC} \parallel \overline{ED}$



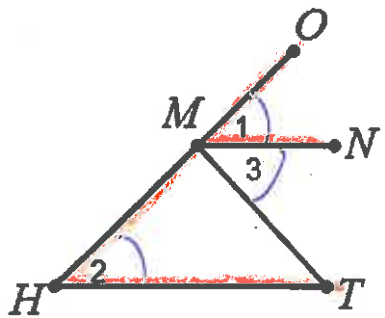
Statement	Reason
① $\angle E \cong \angle B$ $\angle D \cong \angle F$	① Given
② $\angle D \cong \angle B$	② transitive
③ $\overline{BC} \parallel \overline{ED}$	③ 2 lines cut by a trans. are \parallel when Alt. int. \angle 's are \cong .

Flow Chart Proof:

2. Given: \overline{MN} bisects $\angle OMT$

$\angle 3 \cong \angle 2$

Prove: $\overline{MN} \parallel \overline{HT}$



$\angle 1 \cong \angle 3$

