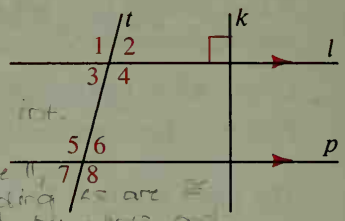
Classroom Exercises

1. What do the arrowheads in the diagram tell you?



Exs. 1-13

State the postulate or theorem that justifies each statement.

2. $\angle 1 \cong \angle 5$

3. $\angle 3 \cong \angle 6$

4. $m\angle 4 + m\angle 6 = 180$

5. $m\angle 4 = m\angle 8$

6. $m\angle 4 = m\angle 5$

7. $\angle 6 \cong \angle 7$

8. $k \perp p$

9. $\angle 3$ is supplementary to $\angle 5$.

10. If $m\angle 1 = 130$, what are the measures of the other numbered angles?

11. If $m\angle 1 = x$, what are the measures of the other numbered angles?

12. If $m\angle 4 = 2m\angle 3$, find $m\angle 6$.

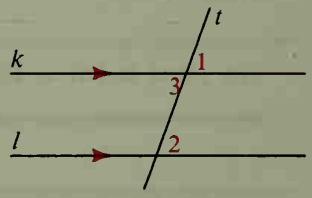
13. If $m\angle 5 = m\angle 6 + 20$, find $m\angle 1$.

14. Alan tried to prove Postulate 10 as shown below. However, he did *not* have a valid proof. Explain why not.

If two parallel lines are cut by a transversal, then corresponding angles are congruent.

Given: $k \parallel l$; transversal t cuts k and l.

Prove: $\angle 1 \cong \angle 2$



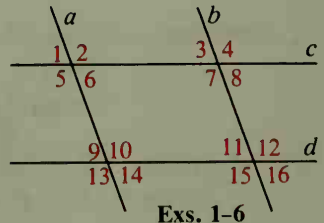
Proof:

Statements	Reasons
1. $k \parallel l$	1. Given
2. $\angle 3 \cong \angle 2$	2. If two parallel lines are cut by a transversal, then alt. int. $\measuredangle$s are $\cong$.
3. $\angle 1 \cong \angle 3$	3. Vert. $\measuredangle$s are $\cong$.
4. $\angle 1 \cong \angle 2$	4. Transitive Prop.

Written Exercises

A **1.** If $a \parallel b$, name all angles that must be congruent to $\angle 1$.

2. If $c \parallel d$, name all angles that must be congruent to $\angle 1$.



Exs. 1-6

Assume that $a \parallel b$ and $c \parallel d$.

3. Name all angles congruent to $\angle 2$.

4. Name all angles supplementary to $\angle 2$.

5. If $m\angle 13 = 110$, then $m\angle 15 =$ ___?___ and $m\angle 3 =$ ___?___.

6. If $m\angle 7 = x$, then $m\angle 12 =$ ___?___ and $m\angle 6 =$ ___?___.