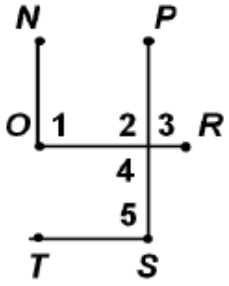
CC Geometry Handout 3B
Section 3-3

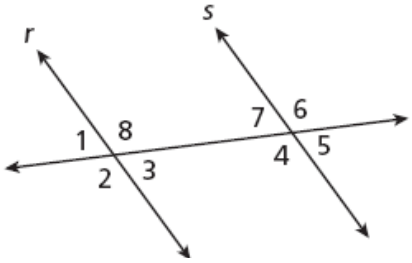
Copy figures onto your paper and show work.

For #1-4, name the segments that must be parallel based on the given information. Write out the reason that supports your answer. If no segments are parallel, write "none".



1. $\angle 2 \cong \angle 5$
2. $\angle 1 \cong \angle 4$
3. $m\angle 4 + m\angle 5 = 180$
4. $\angle 3 \cong \angle 5$

Use the given information and the postulate and theorems to show that *r* || *s*. Write a sentence that explains why the lines are parallel.

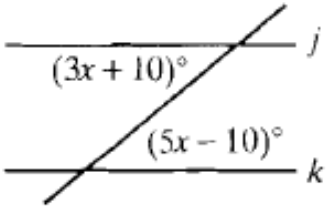


5. m∠ 4 = (13*x* – 4)°, m∠8 = (9*x* + 16)°, *x* = 5

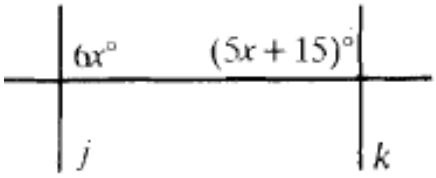
6. m∠ 8 = (17*x* + 37)°, m∠7 = (9*x* - 13)°, *x* = 6

Find the value of *x* that makes *j* ‖ *k*.

7.

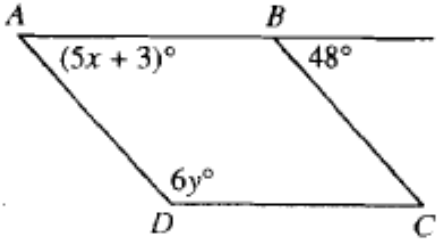


8.

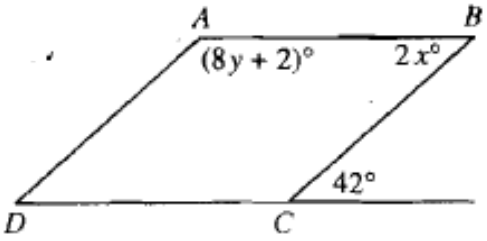


Find the values of *x* and *y* that make $\overline{AB} \parallel \overline{DC}$ and $\overline{AD} \parallel \overline{BC}$.

9.

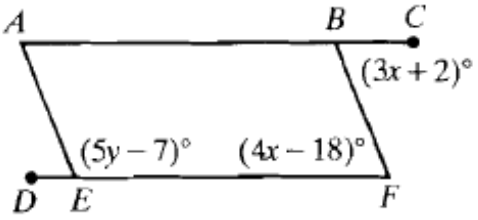


10.

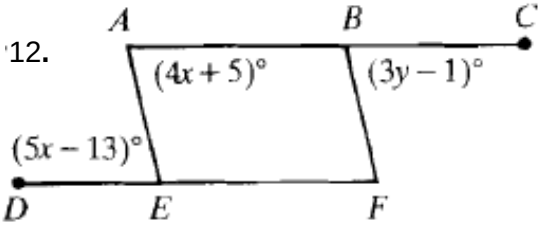


Find the values of *x* and *y* that make $\overline{AC} \parallel \overline{DF}$ and $\overline{AE} \parallel \overline{BF}$.

11.



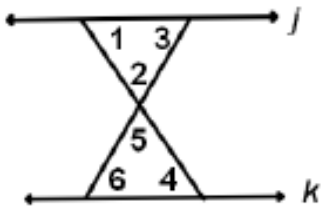
12.



Copy given, prove, and figure for <u>each</u> problem and write a logical proof.

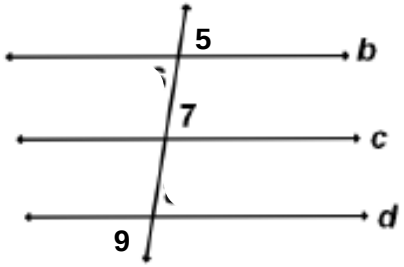
13. Given: $\angle 1 \cong \angle 3$, $\angle 3 \cong \angle 4$

Prove: $j \parallel k$

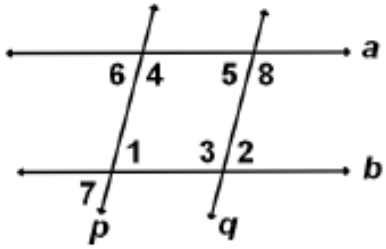


14. Given: $\angle 5 \cong \angle 7$, $b \parallel d$

Prove: $c \parallel d$



Use the figure below for #15 and #16.



15. Given: $\angle 3 \cong \angle 4$, $p \parallel q$

Prove: $a \parallel b$

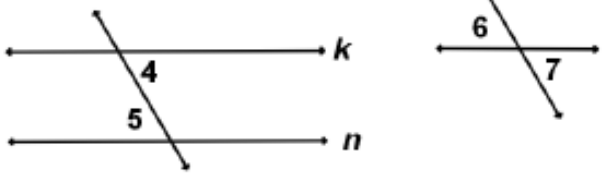
16. Given: $a \parallel b$, $\angle 1 \cong \angle 5$

Prove: $p \parallel q$

Copy everything and complete each proof.

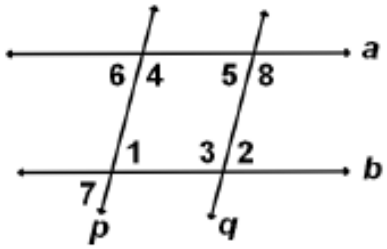
17. Given: $\angle 4 \cong \angle 6$, $\angle 7 \cong \angle 5$

Prove: $k \parallel n$



STATEMENTS	REASONS
1. $\angle 4 \cong \angle 6$	1. ?
2. $\angle 6 \cong \angle 7$	2. ?
3. ?	3. Transitive
4. $\angle 7 \cong \angle 5$	4. ?
5. $\angle 4 \cong \angle 5$	5. ?
6. ?	6. ?

Use the figure below for #18 and #19.



18. Given: $m\angle 6 + m\angle 3 = 180$, $p \parallel q$
Prove: $a \parallel b$

STATEMENTS	REASONS
1. $m\angle 6 + m\angle 3 = 180$, $p \parallel q$	1. ?
2. $m\angle 6 = m\angle 5$	2. ?
3. ?	3. substitution
4. ?	4. ?

19. Given: $m\angle 8 + m\angle 1 = 180$, $a \parallel b$
Prove: $p \parallel q$

STATEMENTS	REASONS
1. $m\angle 8 + m\angle 1 = 180$, $a \parallel b$	1. ?
2. $m\angle 8 = m\angle 3$	2. ?
3. ?	3. substitution
4. ?	4. ?