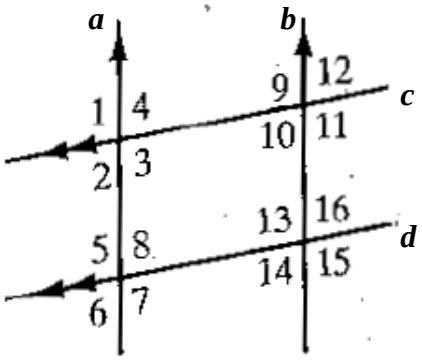
Geometry
Handout 3A
Section 3-2

Name_____

Copy figures for algebra problems on your paper and show work.



a* ∥ *b* and *c* ∥ *d

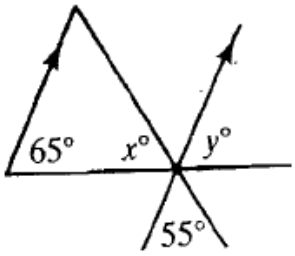
1. If m∠ 13 = 110, find m∠ 11, m∠ 9, m∠ 4, and m∠8.

2. If m∠ 12 = 3*x* – 4 and m∠ 16 = 2*x* + 21, find *x* and m∠ 11.

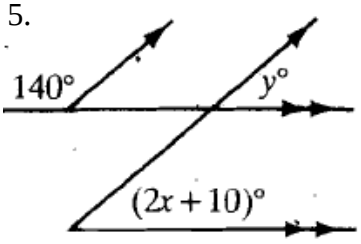
3. If m∠ 2 = 81 and m∠ 5 = 11*x*, find *x* and m∠15.

Find the values of *x*, *y*, and *z*.

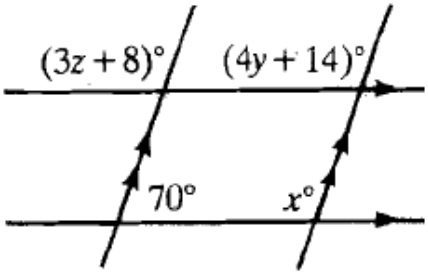
4.



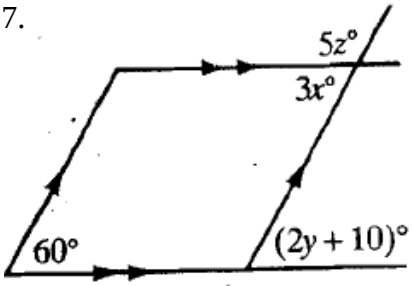
5.



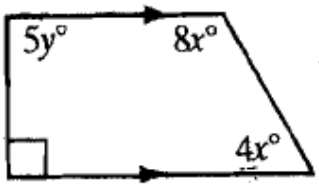
6.



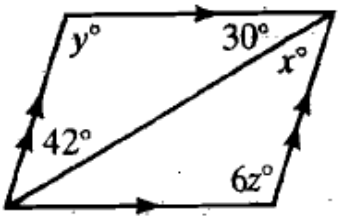
7.



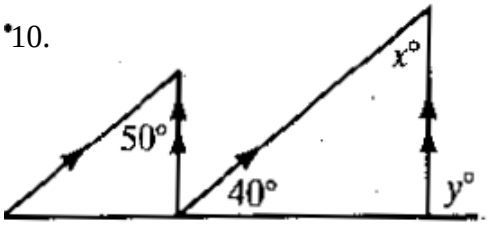
8.



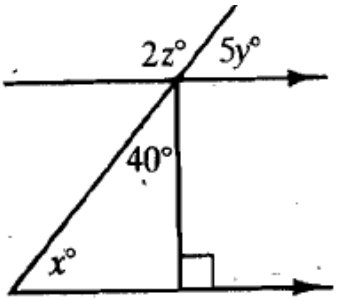
9.



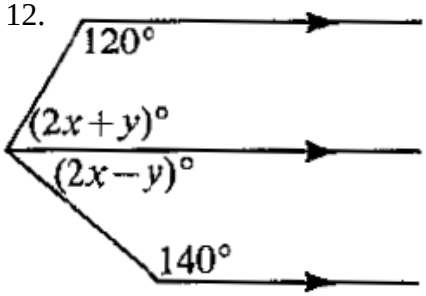
10.



11.

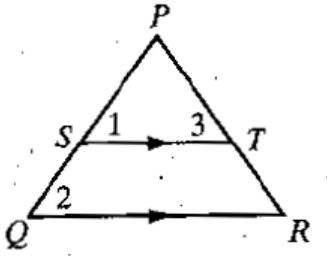


12.

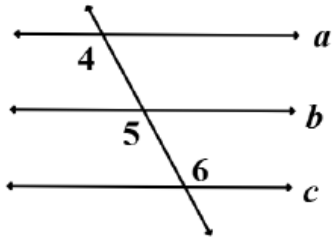


****Copy given, prove and figure on your paper for <u>each</u> proof and write a logical proof.**

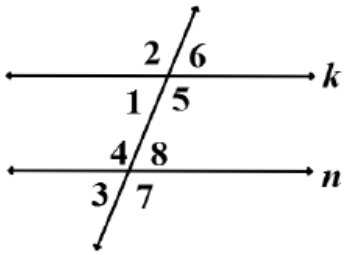
13. Given: $\overline{ST} \parallel \overline{QR}$, $\angle 1 \cong \angle 3$
    Prove: $\angle 2 \cong \angle 3$



14. Given: $a \parallel b$, $b \parallel c$
    Prove: $\angle 4 \cong \angle 6$



(copy the figure below for #15-16)

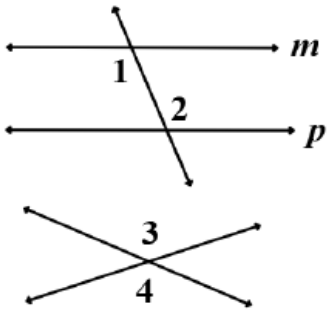


15. Given: $k \parallel n$
    Prove: $\angle 2 \cong \angle 7$

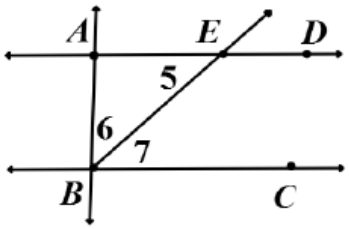
16. Given: $k \parallel n$
    Prove: $m\angle 1 + m\angle 7 = 180$

17. Given: $m \parallel p$, $\angle 1 \cong \angle 4$
    Prove: $\angle 2 \cong \angle 3$

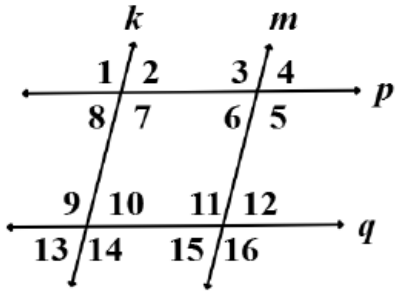
(hint: use transitive property twice)



17. Given: $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$, $\overrightarrow{BE}$ bisects $\angle ABC$
    Prove: $\angle 6 \cong \angle 5$



(copy the figure below for #19-23)



19. Given: $k \parallel m$, $p \parallel q$
    Prove: $\angle 2 \cong \angle 15$

20. Given: $k \parallel m$, $p \parallel q$
    Prove: $\angle 1 \cong \angle 16$

21. Given: $p \parallel q$, $m\angle 6 = m\angle 10$
    Prove: $m\angle 10 + m\angle 11 = 180$

22. Given: $p \parallel q$
    Prove: $m\angle 8 + m\angle 14 = 180$

23. (copy everything and complete)
    Given: $k \parallel m$, $p \parallel q$
    Prove: $m\angle 7 + m\angle 12 = 180$

STATEMENTS	REASONS
1. $k \parallel m$	1. ?
2. $m\angle 7 + m\angle 6 = 180$	2. ?
3. $p \parallel q$	3. ?
4. $m\angle 6 = m\angle 12$	4. ?
5. ?	5. ?