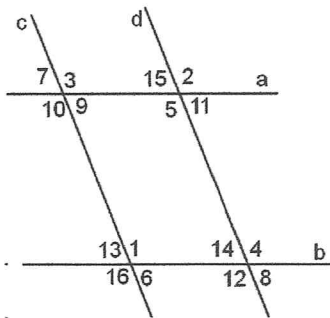


Geometry Review Chapter 3 Fall 2013

Use the figure below where $a \parallel b$ and $c \parallel d$. State the name given to each pair of angles, if any, and their relationship.

1. 14 and 15 2. 13 and 9 3. 11 and 1 4. 8 and 16 5. 3 and 12 6. 13 and 10



Use the same figure above to write a proof.

7. Given: $a \parallel b$ and $c \parallel d$

Prove: $\angle 4 \cong \angle 3$

8. Given: $a \parallel b$ and $c \parallel d$

Prove: $\angle 15$ & $\angle 16$ are supplementary

Use the same figure above to write a proof.

9. Given: $c \parallel d$ and $\angle 8 \cong \angle 7$

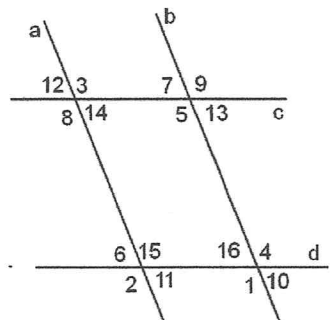
Prove: $a \parallel b$

10. Given: $a \parallel b$ and $\angle 1$ & $\angle 11$ are suppl

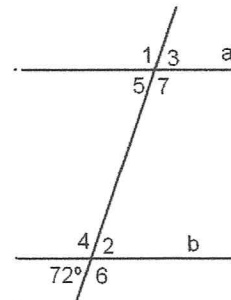
Prove: $c \parallel d$

11. Use the figure below and the given information to determine if there are any parallel lines.

If yes, state which pair of lines are parallel and give a reason.



12. Given: $a \parallel b$ find the measure of the numbered angles.



- a. $\angle 13 \cong \angle 11$ b. $\angle 3 \cong \angle 15$ c. $\angle 4 \cong \angle 2$
 d. $\angle 14 \cong \angle 12$ e. $\angle 13 \cong \angle 16$ f. $\angle 12$ & $\angle 2$ are suppl.
 g. $\angle 3$ & $\angle 10$ are suppl. h. $\angle 13$ & $\angle 4$ are suppl.

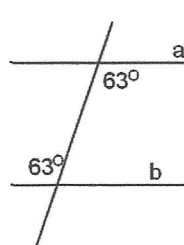
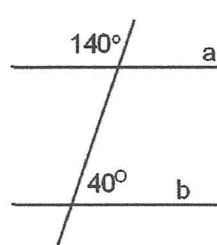
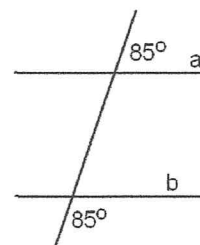
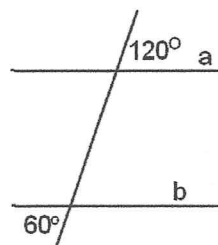
Are lines a and b parallel? If yes, give a reason.

13.

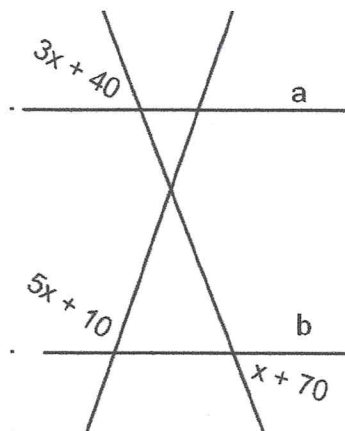
14.

15.

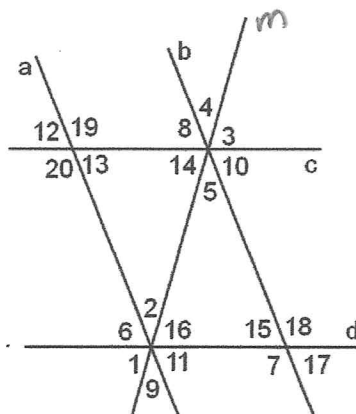
16.



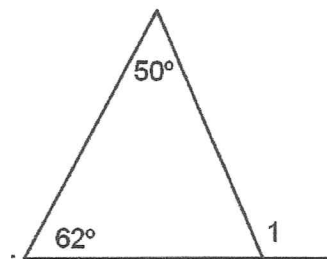
17. Find the value of x so that lines a and b are parallel.



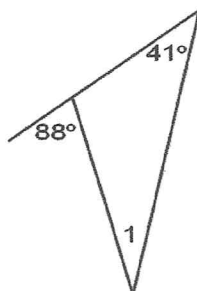
18. Name the parallel lines and the transversal that form each pair of angles then name the angles
 a) 15 and 8 b) 2 and 4 c) 6 and 13 d) 7 and 11



19. $m\angle 1 =$

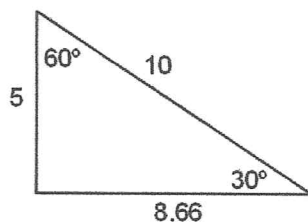


20. $m\angle 1 =$

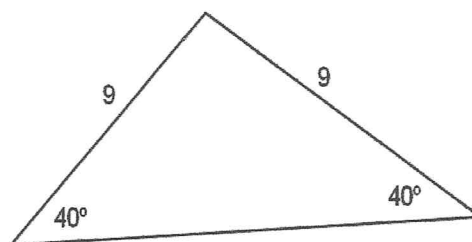


Classify each triangle by its angles and its sides.

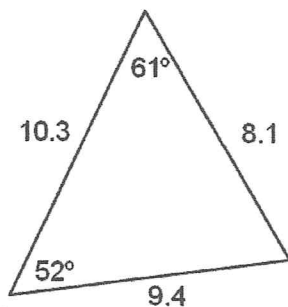
21.



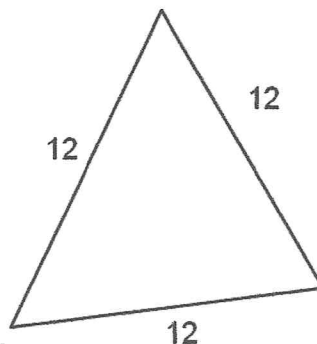
22.



23.

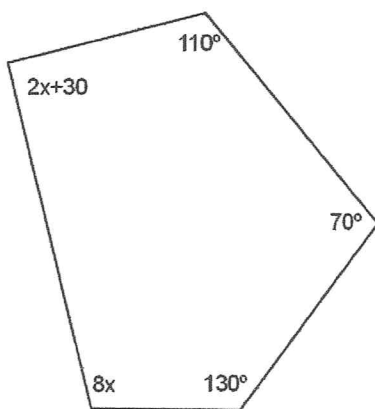


24.

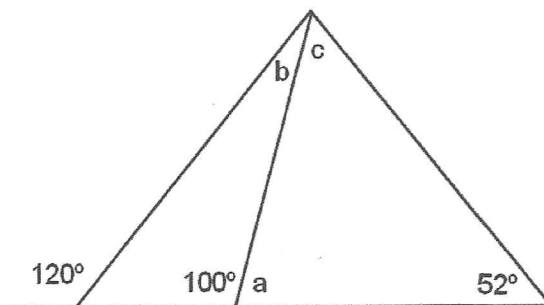


25. Find the sum of the interior angles of a Decagon.
26. Find the measure of one interior angle of a regular 15-gon.
27. Find the number of sides of a polygon if the sum of the interior angles is 5580° .
28. Find the number of sides of a regular polygon if one interior angle has a measure of 171° .
29. Find the measure of one exterior angle of a regular Octagon.
30. Find the number of sides of a regular polygon if one exterior angle has a measure of 30° .
31. Can the sum of the interior angles of a polygon equal 3000° ? Explain your answer.
32. Can the measure of one interior angle of a regular polygon equal 175° ? Explain your answer.

33. Find the value of x in the figure below.



34. Find the value of each variable.



1. Corresponding $\angle's, \cong$ 2. Alt. Int. $\angle's, \cong$ 3. No Name, suppl 4. Same-Side Ext $\angle's$, suppl
 5. No name, $\cong$ 6. Same-Side Int $\angle's$, suppl

For 7 to 10 many different proofs are possible only one example is given.

Statement	Reason	Statement	Reason
1. $a \parallel b, c \parallel d$	1. Given	1. $a \parallel b, c \parallel d$	1. Given
2. $\angle 1 \cong \angle 3$	2. Corresp $\angle's$ are $\cong$	2. $\angle 15$ suppl to $\angle 12$	2. SSE $\angle's$ are suppl
3. $\angle 1 \cong \angle 4$	3. Corresp $\angle's$ are $\cong$	3. $\angle 12 \cong \angle 16$	3. Corresp $\angle's$ are $\cong$
4. $\angle 3 \cong \angle 4$	4. Substitution	4. $\angle 15$ suppl to $\angle 16$	4. Substitution

Statement	Reason
1. $c \parallel d, \angle 8 \cong \angle 7$	1. Given
2. $\angle 11 \cong \angle 7$	2. Alt. Ext. $\angle's$ are $\cong$
3. $\angle 11 \cong \angle 8$	3. Substitution
4. $a \parallel b$	4. b/c Corresp $\angle's$ are $\cong$

Statement	Reason
1. $a \parallel b, \angle 1$ suppl to $\angle 11$	1. Given
2. $\angle 11 \cong \angle 14$	2. Alt. Int. $\angle's$ are $\cong$
3. $\angle 1$ suppl to $\angle 14$	3. Substitution
4. $c \parallel d$	4. b/c SSI $\angle's$ are suppl

11. a. Not enough Information b. $c \parallel d$, Corresp $\angle's$ are $\cong$ c. $a \parallel b$, Alt. Ext. $\angle's$ are $\cong$
 d. Not enough Information e. $c \parallel d$, Alt. Int. $\angle's$ are $\cong$ f. $c \parallel d$, SSE $\angle's$ are suppl
 g. Not enough Information h. $c \parallel d$, SSI $\angle's$ are suppl

12. $\angle's 2, 3, 5 = 72^\circ$ $\angle's 1, 4, 6, 7 = 108^\circ$ 13. No, Alt Ext $\angle's$ are not $\cong$
 14. No, SSE $\angle's$ are not suppl. 15. Yes, using vertical angles with 140° angle SSI are suppl.
 16. Yes, Alt Int. $\angle's \cong$ 17. Using Alt. Ext $\angle's$: $3x + 40 = x + 70 \rightarrow x = 15$
 18. a. $c \parallel d$, transversal b, Corresp $\angle's$ b. $a \parallel b$, transversal m, Corresp $\angle's$
 c. $c \parallel d$, transversal a, Alt. Int. $\angle's$ d. $a \parallel b$, transversal d, SSI $\angle's$

19. 112° 20. 47° 21. Right Scalene $\triangle$ 22. Isosceles Obtuse $\triangle$
 23. Acute Scalene $\triangle$ 24. Equilateral Equiangular $\triangle$ 25. 1440° 26. 156°
 27. 33 sides 28. 40 sides 29. 45° 30. 12 sides
 31. No, the number of sides must be a whole number greater than 2.

32. Yes, you would get 72 for the number of sides and this is possible.

33. $x = 20$ 34. $a = 80^\circ, b = 20^\circ, c = 48^\circ$