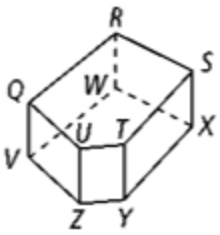
Name_____ Geometry 3.1-3.4 Study Guide

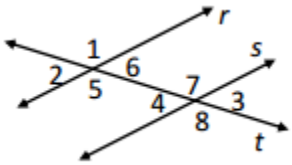
Use the diagram to name each of the following.

1. a pair of parallel planes 2. all lines parallel to $\overleftrightarrow{QR}$ 3. all lines skew to $\overleftrightarrow{ST}$



Identify the named relationship between the pair of angles in the diagram.

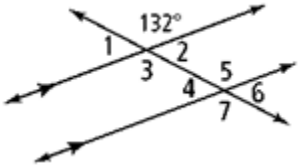
4. $\angle 5$ & $\angle 7$ 5. $\angle 1$ & $\angle 8$ 6. $\angle 5$ & $\angle 8$



7. $\angle 3$ & $\angle 4$ 8. $\angle 6$ & $\angle 7$ 9. $\angle 3$ & $\angle 8$

Identify all the numbered angles that are congruent to the given angle. Justify your answers

10.

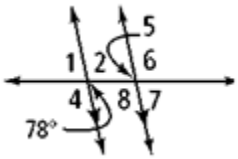


∠____ **because** _____

∠____ **because** _____

∠____ **because** _____

11.



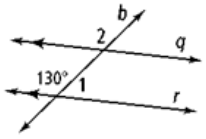
∠____ **because** _____

∠____ **because** _____

∠____ **because** _____

Find $m\angle 1$ and $m\angle 2$ for each set of parallel lines. Justify your answer.

12.



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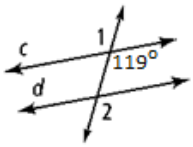
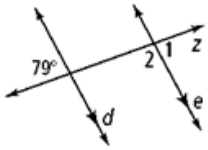


14.



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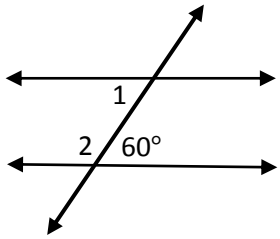
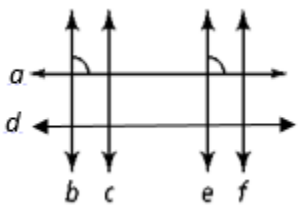


$m\angle 1 =$ _____ ;_____ $m\angle 1 =$ _____ ;_____ $m\angle 1 =$ _____ ; _____ $m\angle 1 =$ _____ ; _____

$m\angle 2 =$ _____ ; _____ $m\angle 2 =$ _____ ;_____ $m\angle 2 =$ _____; _____ $m\angle 2 =$ _____; _____

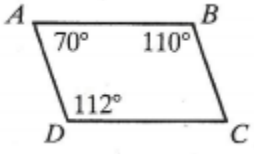
Which lines or segments are parallel? Justify your answer.

16.



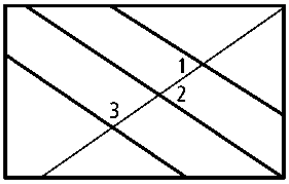
_____ ∥ _____ because _____

17.



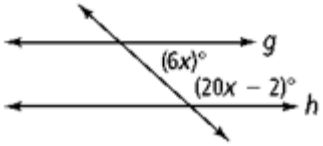
_____ ∥ _____ because _____

18. The art club is designing a new flag for the marching band. In the diagram, $m\angle 1 = 45$, $m\angle 2 = 45$, and $m\angle 3 = 145$. Does the flag contain three parallel lines? Justify your answer.



Find the value of *x* for which $a \parallel b$ or $g \parallel h$.

19.



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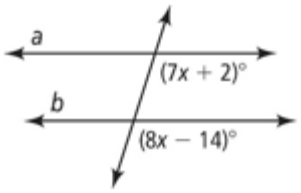
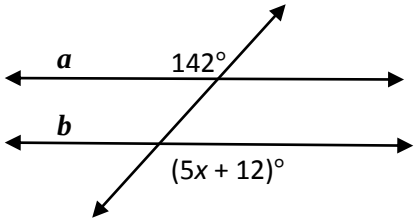


21.



For each combination of relationships, determine whether *p* and *s* are parallel or perpendicular to each other.

22. $p \perp r$ and $r \perp s$

23. $p \perp r$ and $r \parallel s$

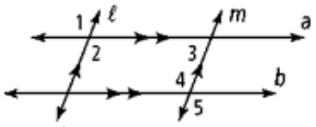
24. If $p \parallel r$ and $r \parallel s$

25. $p \perp q,\ q \parallel r,\ r \perp s$

26. $p \perp q,\ q \parallel r,\ r \parallel s$

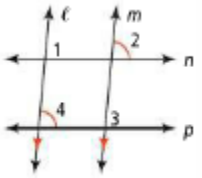
Fill in the statement or reason for each proof:

27. **Given**: $\ell \parallel m, a \parallel b$
Prove: $\angle 1 \cong \angle 5$



Statements	Reasons:
1. $\ell \parallel m, a \parallel b$	1. _____
2. $\angle 1 \cong \angle 2$	2. _____
3. $\angle 2$ and $\angle 3$ are supplementary	3. _____
4. $\angle 3$ and $\angle 4$ are supplementary	4. _____
5. $\angle 2 \cong \angle 4$	5. _____
6. $\angle 1 \cong \angle 4$	6. _____
7. $\angle 4 \cong \angle 5$	7. _____
8. $\angle 1 \cong \angle 5$	8. _____

28. **Given:** $\ell \parallel m, \angle 2 \cong \angle 4$
Prove: $n \parallel p$



Statements	Reasons:
1. $\ell \parallel m$	1. _____
2. $\angle 1 \cong \angle 2$	2. _____
3. $\angle 2 \cong \angle 4$	3. _____
4. _____	4. Transitive POC
5. $n \parallel p$	5. _____