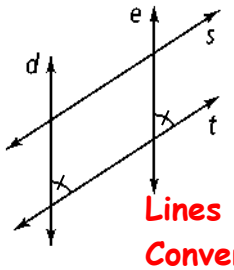
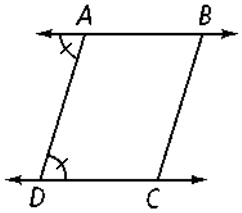
Name_____Date_____

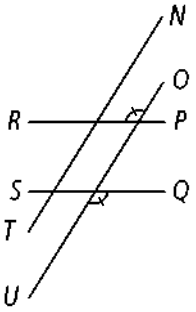
3.3 – Proving Lines Parallel

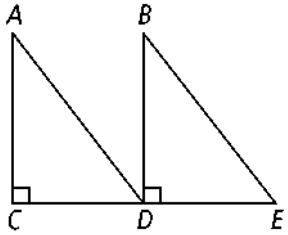
Which lines or segments are parallel? Justify your answer.

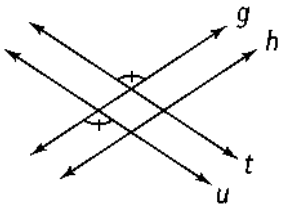
1) 

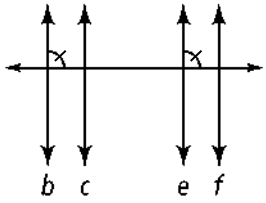
Lines *d* and *e*
Converse CA

2) 

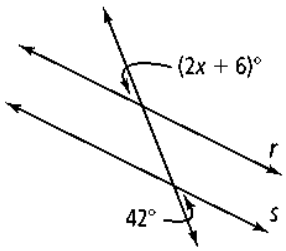
3) 

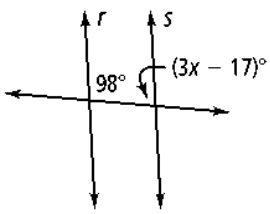
4) 

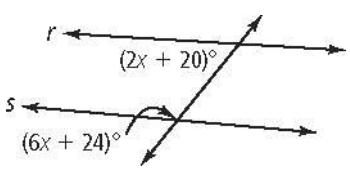
5) 

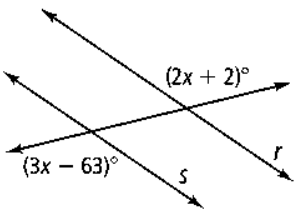
6) 

Determine the value of x for which $r \parallel s$. Then find the measure of each labeled angle.

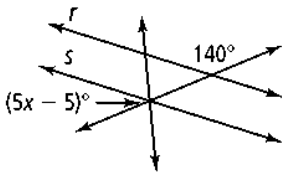
7) 

8) 

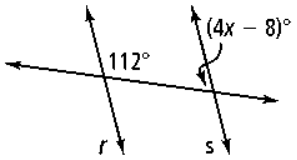
9) 

10) 

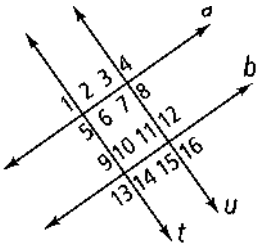
11)



12)



Use the given information to determine which lines, if any, are parallel. Justify each conclusion with a theorem or postulate.



13) $\angle 11$ is supplementary to $\angle 10$.

14) $\angle 6 \cong \angle 9$

15) $\angle 13$ is supplementary to $\angle 14$.

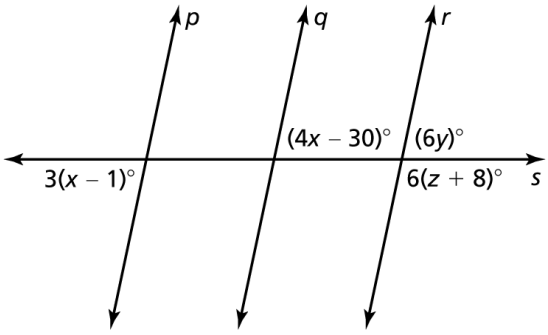
16) $\angle 13 \cong \angle 15$

17) $\angle 12$ is supplementary to $\angle 3$.

18) $\angle 2 \cong \angle 13$

Use the diagram to answer the following.

19) Find the values of x, y, and z That makes $p \parallel q$ and $q \parallel r$. Explain your reasoning.

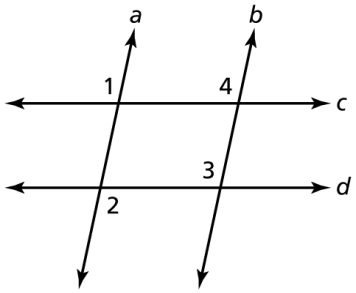


20) Is $p \parallel r$? Explain your reasoning.

21) Write a two-column proof.

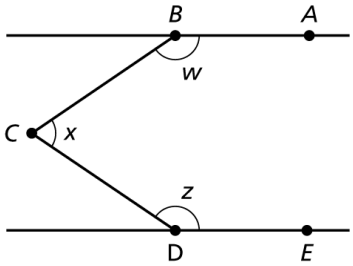
Given: $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$

Prove: $\angle 1 \cong \angle 4$



Statement	Reasons
1. _____	_____
2. $c \parallel d$	_____
3. _____	_____
4. _____	_____
5. _____	_____

22) $\overline{AB}$ is parallel to $\overline{DE}$, $m\angle w = 135°$, and $m\angle z = 147°$. Find $m\angle BCD$.



23) Point *R* is not in plane *ABC*.

a. How many lines through *R* are perpendicular to plane *ABC*?

b. How many lines through *R* are parallel to plane *ABC*?

c. How many planes through *R* are parallel to plane *ABC*?

24**)** In the diagram to the right, $e \parallel d$, $g \parallel f$, and $a \parallel b \parallel c$. Find the following.

a. $m\angle 1$ = _____

b. $m\angle 2$ = _____

c. $m\angle 3$ = _____

d. $m\angle 4$ = _____

e. $m\angle 5$ = _____