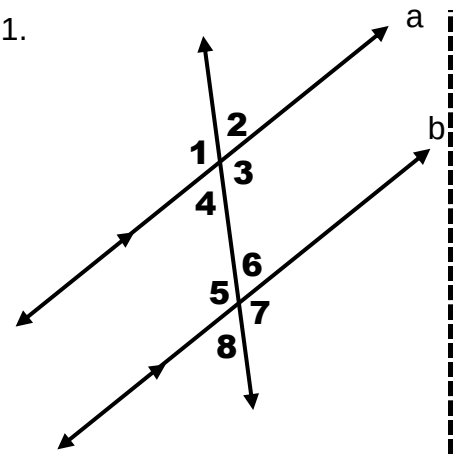
Independent Practice: **PROOFS OF PARALLEL LINES**

NAME: _____ DATE: _____ PERIOD: _____

For # 1-3, given *a* || *b,* state the postulate or theorem that justifies each conclusion.

1.

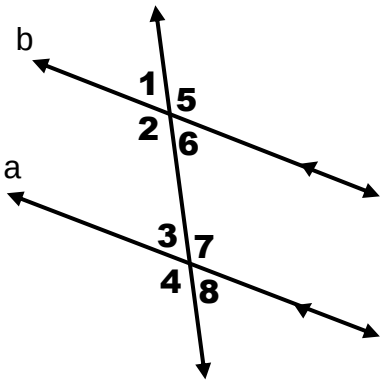


∠ 1 is supplementary to ∠ 8

because given

_____

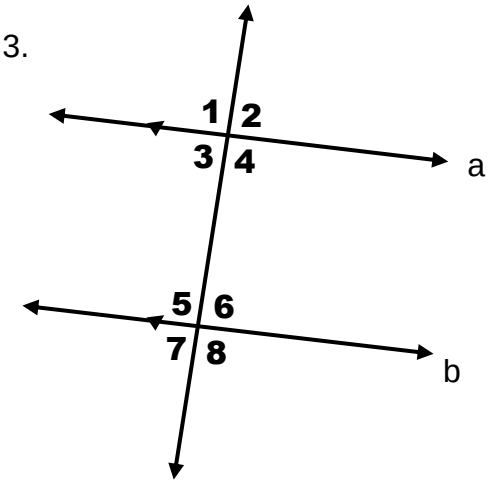
2.



∠ 2 ≅ ∠ 7 because

_____

3.

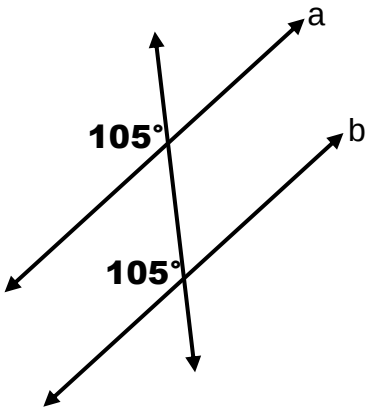


∠ 4 ≅ ∠ 8 because

_____

For # 4-6, state the postulate or theorem that allows you to conclude that *a* || *b*.

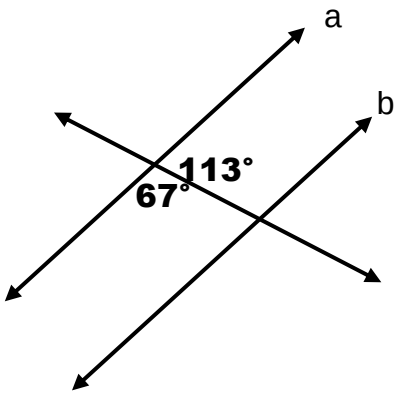
4.



a || *b because*

_____

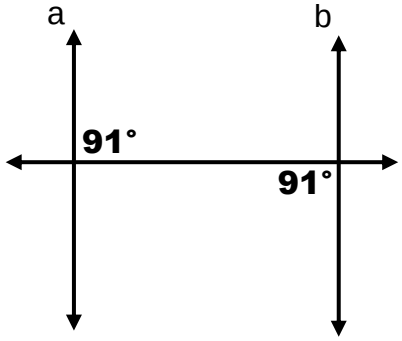
5.



a || *b because*

_____

6.

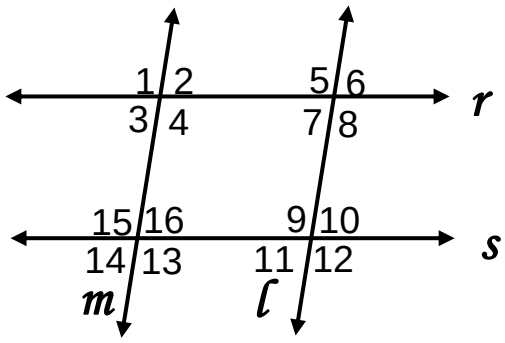


a || *b because*

_____

7. Given: $r \parallel s$
$l \parallel m$

Prove: $\angle 6 \cong \angle 14$



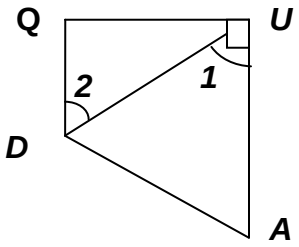
Use the following word bank to complete the proof.

$\angle 6 \cong \angle 11$	l ‖ m	Alternate Exterior Angle are ≅
Transitive Property	Given	$\angle 11 \cong \angle 14$ r ‖ s
$\angle 6 \cong \angle 14$	Given	Corresponding Angles are ≅

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

8. Fill in any missing statements or reasons to complete the proof.

Given: $\overline{AU} \perp \overline{QU}$; $\angle 1 \cong \angle 2$
Prove: $\overline{DQ} \perp \overline{QU}$

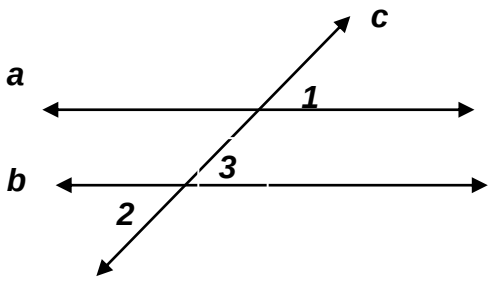


Statements	Reasons
1. $\overline{AU} \perp \overline{QU}$	1.
2.	2. Given
3.	3. Converse of Alternate Interior Angles
4. $\overline{DQ} \perp \overline{QU}$	4. Lines are _____ to the same line

9. Fill in any missing statements or reasons to complete the proof.

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

Prove: *a ll b*

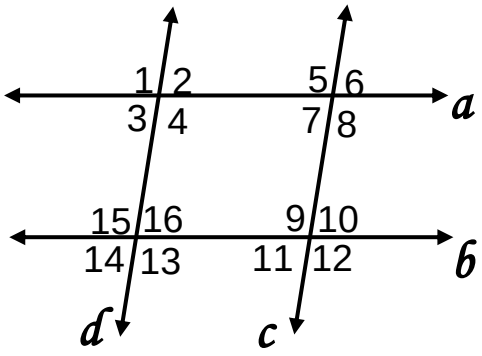


Statements	Reasons
1. $\angle 1 \cong \angle 2$	1.
2. $\angle 2 \cong \angle 3$	2.
3.	3. Transitive Property (Substitution)
4.	4.

10. Given: $c \parallel d$

$\angle 2 \cong \angle 10$

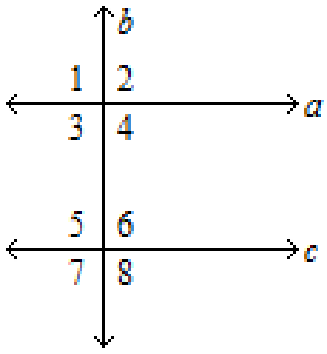
Prove: $a \parallel b$



Use the following word bank to complete the proof.

$\angle 2 \cong \angle 6$	a ‖ b	Converse of Corresponding Angles	
Transitive Property	Given	$\angle 6 \cong \angle 10$	Given

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.



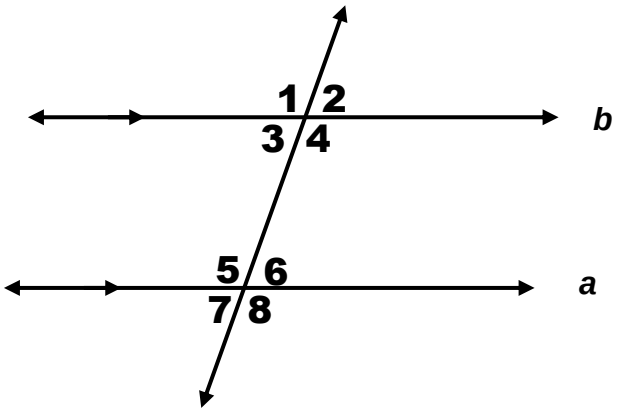
11. Find the values of **x** and **y** that makes *a ll c,* if $a \perp b$:

m∠6 = $(\frac{x}{2} - 3)°$ and

m∠1 = $(4y + 22)°$.

x = _____

y = _____



12. Find the values of **x** and **y** that makes *a ll b*:

m∠3 = $(5x - 10)°$ and

m∠5 = $(8x - 5)°$ and

m∠7 = $(11y – 12)°$.

x = _____

y = _____

For # 13 – 14, use the figure below to find the value of the variables so that s ll t.

13. x = _____

14. y = _____