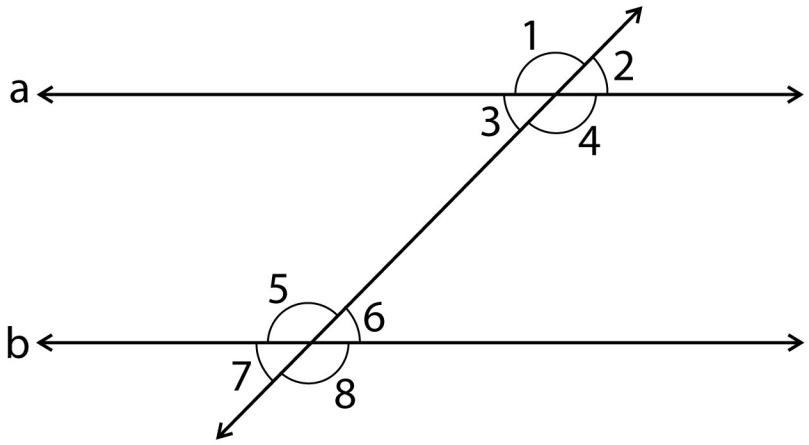
Practice Sheet for Proofs Involving Parallel Lines and Transversals

MATH MONKS

A) In the given figure, a || b. State the postulate or theorem (reason) that justifies each statement.

Example:

Statement	Reason
a) $\angle 4 \cong \angle 8$	Corresponding $\angle$s.
b) $\angle 3$ Supplementary to $\angle 5$	Consecutive interior $\angle$s theorem.



Statement	Reason
1) $\angle 1 \cong \angle 8$	
2) $\angle 3 \cong \angle 7$	
3) $\angle 4$ supplementary to $\angle 6$	
4) $\angle 3$ supplementary to $\angle 4$	
5) $\angle 7 \cong \angle 6$	

B) Write whether the given statements are True (T) or False (F)

1) If two lines are cut by a transversal so that alternate interior angles are congruent, then the lines are perpendicular to each other. _____

2) If two lines are cut by a transversal so that the consecutive interior angles are supplementary, then the lines are parallel. _____

3) If two lines are cut by a transversal so that alternate exterior angles are congruent, then the lines are parallel. _____

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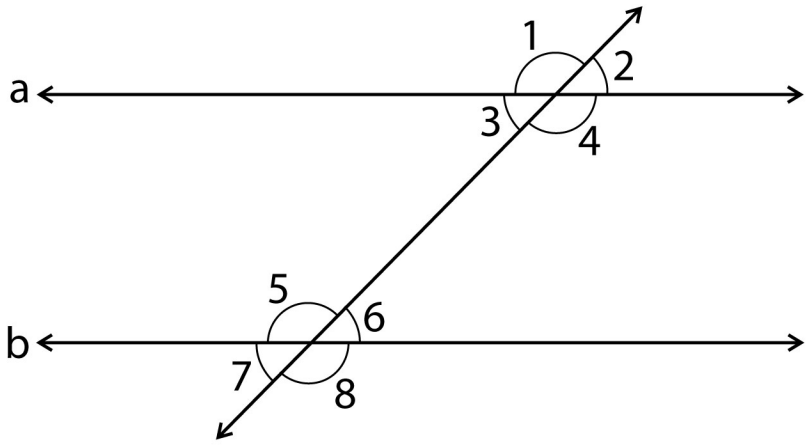
A)

Answers

Example:

Statement	Reason
a) $\angle 4 \cong \angle 8$	Corresponding $\angle$s.
b) $\angle 3$ Supplementary to $\angle 5$	Consecutive interior $\angle$s theorem.



Statement	Reason
1) $\angle 1 \cong \angle 8$	Alternate exterior $\angle$s.
2) $\angle 3 \cong \angle 7$	Corresponding $\angle$s.
3) $\angle 4$ supplementary to $\angle 6$	Consecutive interior $\angle$s theorem.
4) $\angle 3$ supplementary to $\angle 4$	Liner pair theorem.
5) $\angle 7 \cong \angle 6$	Vertically opposite $\angle$s.

B)

1) If two lines are cut by a transversal so that alternate interior angles are congruent, then the lines are perpendicular to each other. F

2) If two lines are cut by a transversal so that the consecutive interior angles are supplementary, then the lines are parallel. T

3) If two lines are cut by a transversal so that alternate exterior angles are congruent, then the lines are parallel. T