Pg 131 (1-4)

1. ∠2 and ∠3

   transversal: $\overleftrightarrow{SQ}$

   lines: $\overleftrightarrow{PQ}$, $\overleftrightarrow{SR}$

   alt int ∠'s

2. ∠1 and ∠4

   transversal: $\overline{SQ}$

   lines: $\overline{PS}$, $\overline{QR}$

   alt int ∠

3. ∠SPQ and ∠PQR

   transversal: $\overline{PQ}$

   lines: $\overline{PS}$, $\overline{QR}$

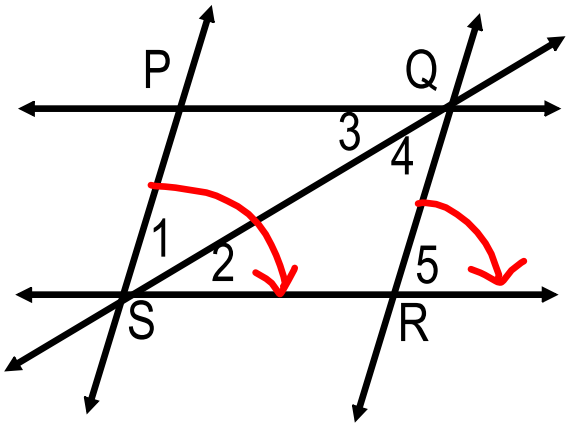
   S-S int ∠'s

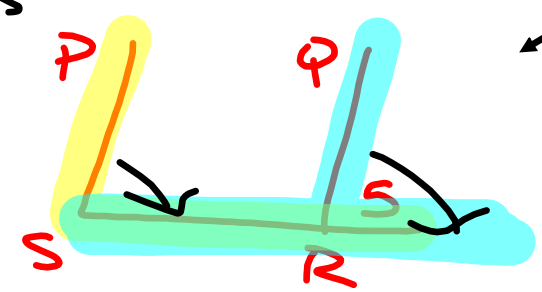
4. ∠5 and ∠PSR

   transversal: $\overline{SR}$

   lines: $\overline{PS}$, $\overline{QR}$

   Corrs. ∠'s

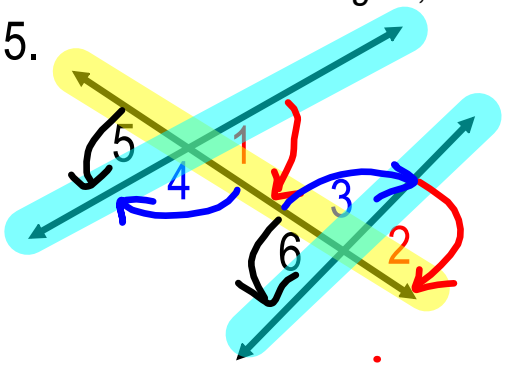




Pg 131 (5-8)

Classify each pair of angles labeled in the same color as *alternate interior angles, same-side interior angles, or corresponding angles.*

5.

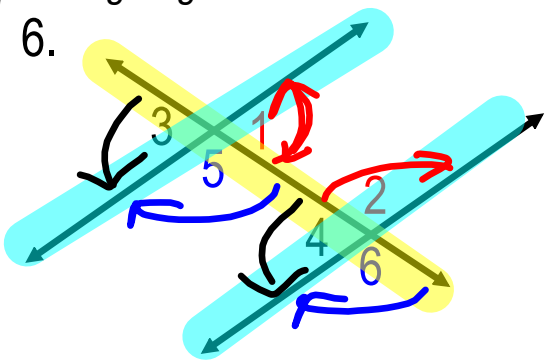


red: corrs. ∠s

blue: alt. int. ∠'s

black: corrs. ∠s

6.

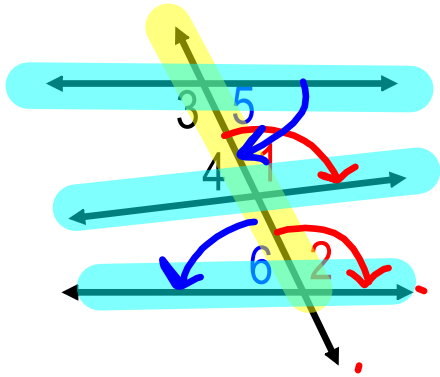


red: s-s int ∠'s

blue: corrs. ∠'s

black: corrs. ∠s

7.



red: corrs. ∠s

blue: alt int ∠s

black: s-s int ∠s

Geometry

Ch. 3 Handout 3.1

Proofs (2nd day)

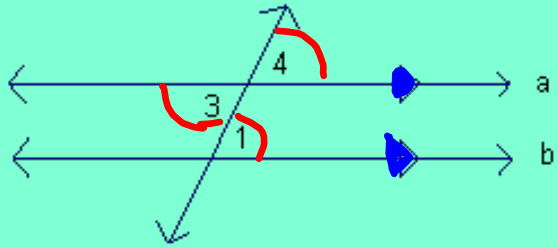
Postulate 3.1 -- If transversal intersects two parallel lines, then corresponding angles are congruent.

Theorem 3.1 If a transversal intersects two parallel lines, then alternate interior angles are congruent.

If ll lines then alt int ∠'s

Given: $a \parallel b$

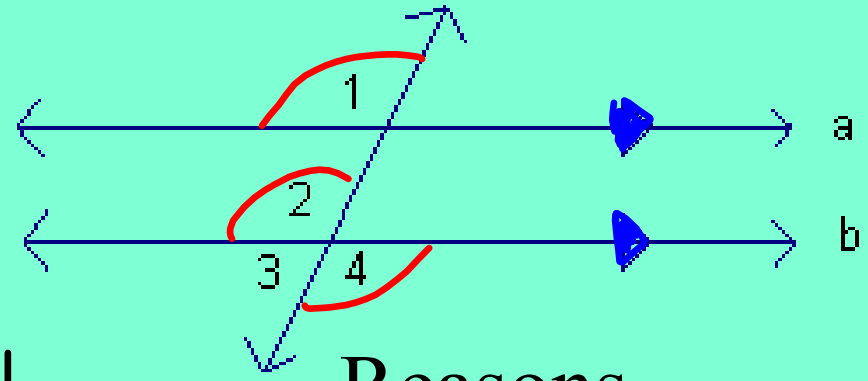
Prove: $\angle 1 \cong \angle 3$



Statement	Reasons
① a ll b	① Given
② ∠3 ≅ ∠4	② Vert. ∠'s ≅
③ ∠4 ≅ ∠1	③ If ll lines then corrs. ∠'s ≅
④ ∠3 ≅ ∠1	④ Trans prp ≅

Given: $a \parallel b$

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



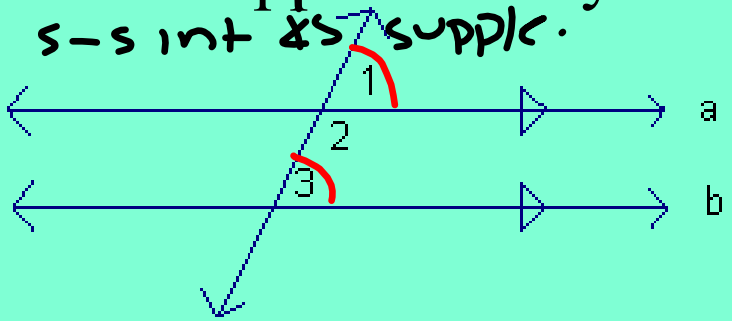
Statement	Reasons
① a ∥ b	① Given
② ∠4 ≅ ∠2	② Vert ∠s ≅
③ ∠2 ≅ ∠1	③ If ∥ lines then corrs. ∠s ≅
④ ∠1 ≅ ∠4	④ trans. prop ≅

Theorem 3.2 If a transversal intersects two parallel lines, then same-side interior angles are supplementary

If a ll lins then s-s int $\measuredangle$s supple.

Given: $a \parallel b$

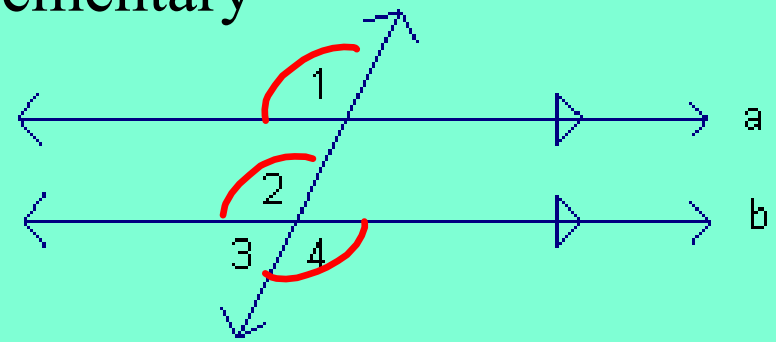
Prove: $\angle 3$ is supplementary to $\angle 2$



Statement	Reasons
(1) a ll b	(1) Given
(2) $\measuredangle 3 \cong \measuredangle 1$ ($m\measuredangle 3 = m\measuredangle 1$)	(2) Vert. $\measuredangle$s $\cong$
(3) $m\measuredangle 1 + m\measuredangle 2 = 180$	(3) $\measuredangle$ add post.
(4) $m\measuredangle 3 + m\measuredangle 2 = 180$	(4) Subst prop =
(5) $\measuredangle 3$ is supple to $\measuredangle 2$	(5) defn of supple $\measuredangle$s

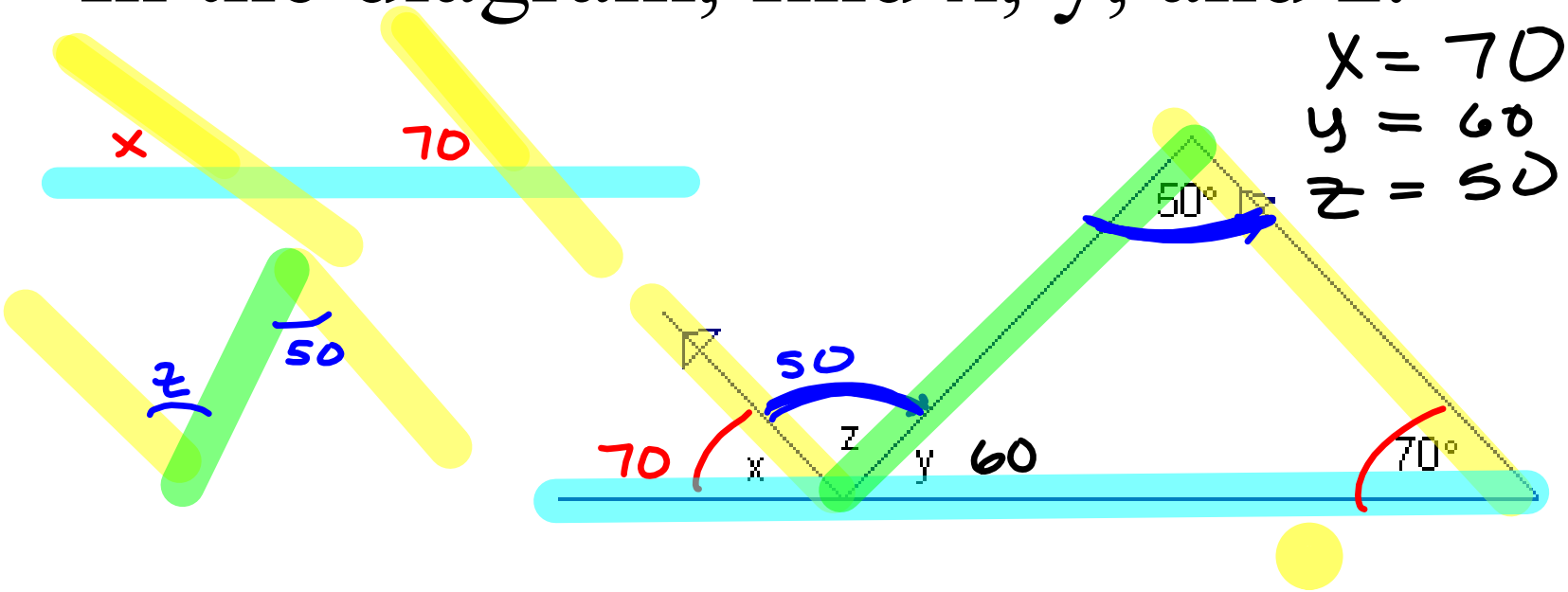
Given: $a \parallel b$

Prove: $\angle 1$ and $\angle 3$ are supplementary



Statement	Reasons
① a ∥ b	① Given
② ∠1 ≅ ∠2	② If ∥ lines then corrs ∠s ≅
③ ∠2 ≅ ∠4	③ Vert ∠s ≅
④ ∠1 ≅ ∠4	④ trans. prop ≅
⑤ m∠4 + m∠3 = 180	⑤ ∠ add post
⑥ m∠1 + m∠3 = 180	⑥ Subst
⑦ ∠1 is supp ∠3	⑦ defn of supple ∠'s

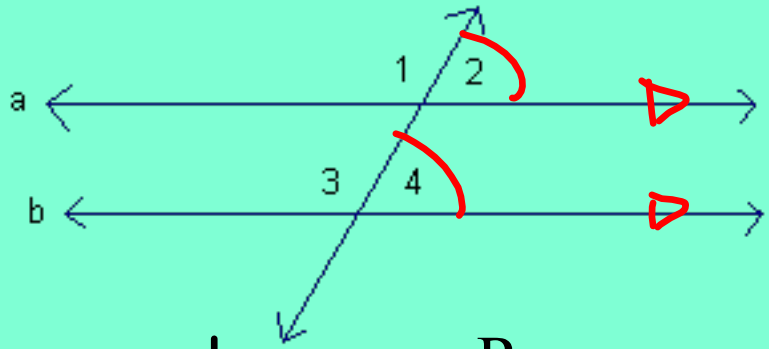
In the diagram, find x, y, and z.



x = 70
y = 60
z = 50

Given: $a \parallel b$

Prove: $\angle 1$ and $\angle 4$ are supplementary



Statements	Reasons
① a ∥ b	① Given
② m∠1 + m∠2 = 180	② ∠ add post
③ ∠2 ≅ ∠4	③ If ∥ lines, corr ∠s ≅
④ m∠1 + m∠4 = 180	④ Subst
⑤ ∠1 is supple to ∠4	⑤ defn of supple ∠'s

Assignment:

pg 131 (9, ~~10~~, 28, 29, 41(proof)

Given: $\ell \parallel m$

$n \parallel p$

Prove: $\angle 1 \cong \angle 13$