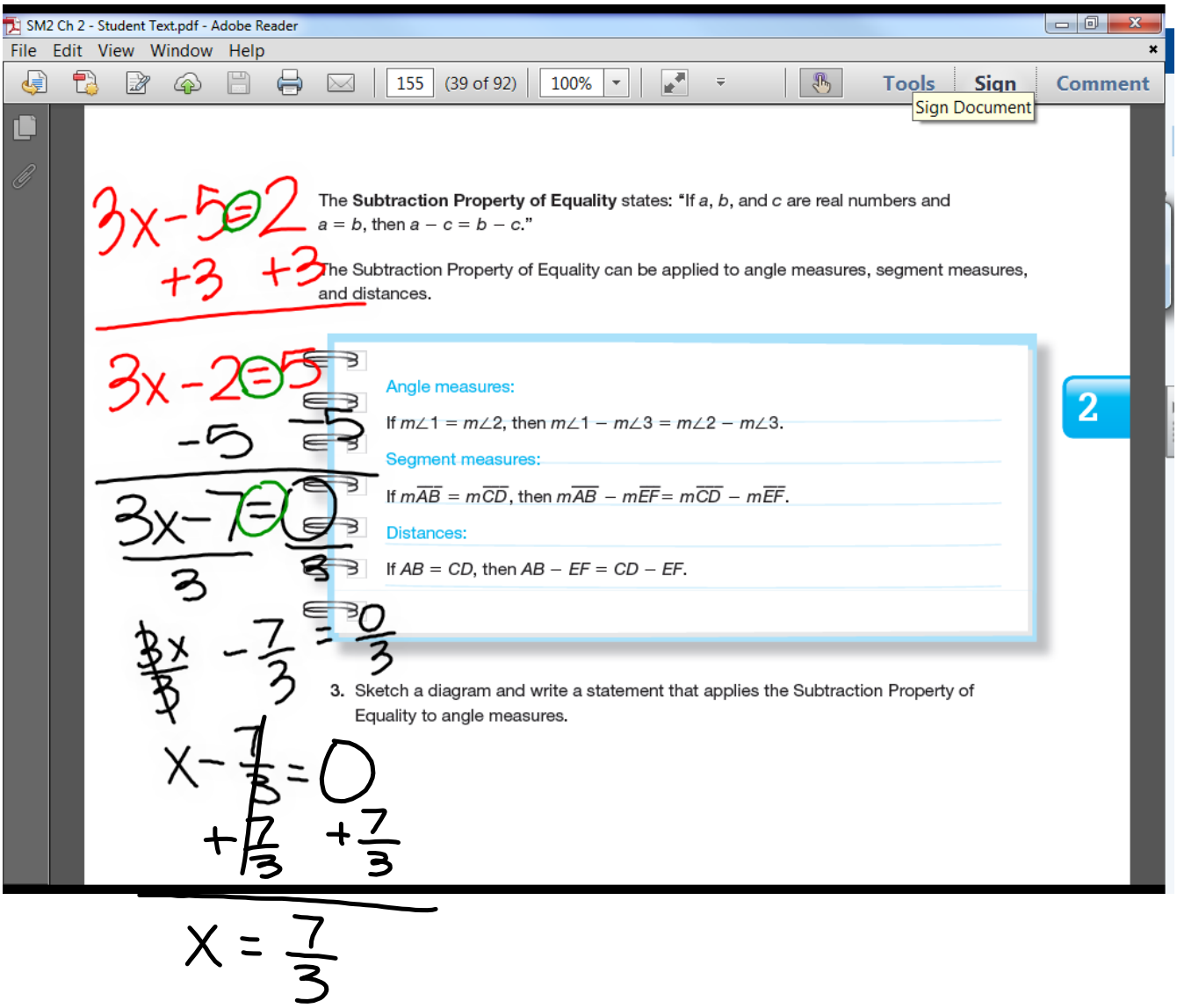
Questions on lesson 2.3?

Look over Lesson 2.3's homework, we will be taking our content mastery quiz soon!

Feb 27-8:47 AM



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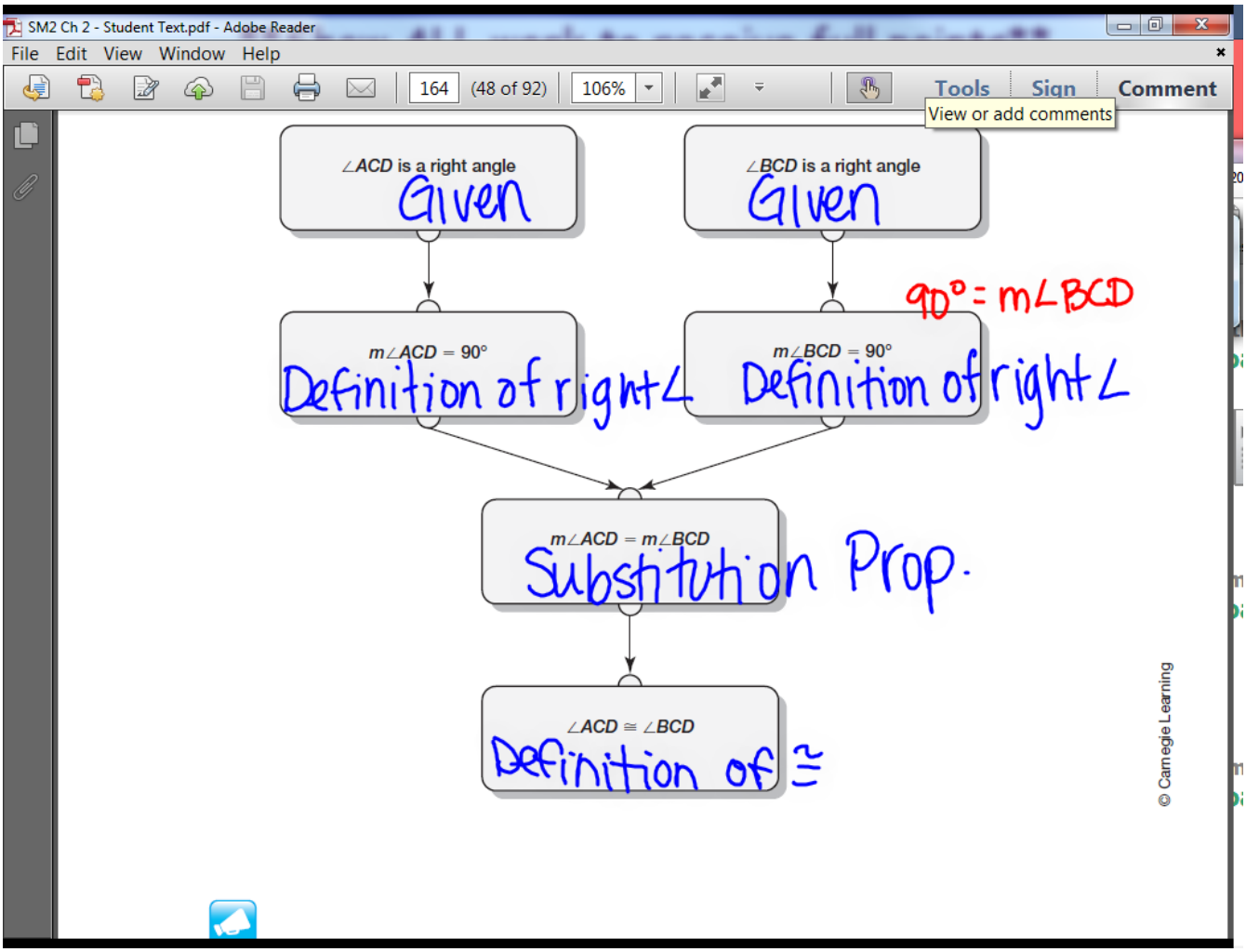
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∠ACD is a right angle
Given
∠BCD is a right angle
Given
90° = m∠BCD
m∠ACD = 90°
Definition of right∠
m∠BCD = 90°
Definition of right∠
m∠ACD = m∠BCD
Substitution Prop.
∠ACD ≅ ∠BCD
Definition of ≅
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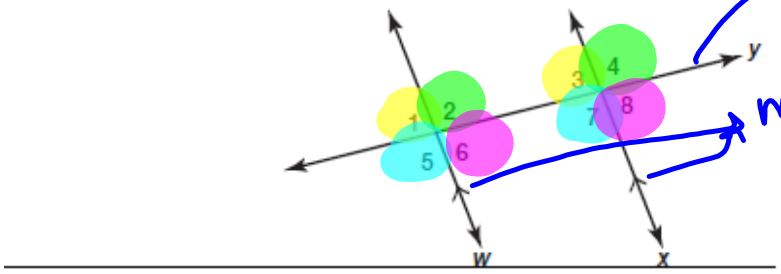
2.4 What's Your Proof?
Angle Postulates and Theorems

PG. 176-7 IN YOUR BOOK

The **Corresponding Angle Postulate** states: "If two parallel lines are intersected by a transversal, then corresponding angles are congruent."

transversal

mean w||x



1. Name all pairs of angles that are congruent using the Corresponding Angle Postulate.

∠1≅∠3, ∠2≅∠4, ∠5≅∠7, ∠6≅∠8

A **conjecture** is a hypothesis that something is true. The hypothesis can later be proved or disproved.

2. Write a conjecture about each pair of angles formed by parallel lines cut by a transversal. Explain how you made each conjecture.

a. alternate interior angles.

∠2≅∠7, ∠3≅∠6

b. alternate exterior angles.

∠1≅∠8, ∠5≅∠4

c. same-side interior angles

∠2≅∠3, ∠7≅∠6

Supplementary

d. same-side exterior angles

∠1≅∠4, ∠5≅∠8

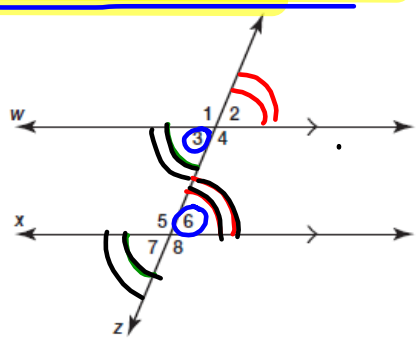
Supplementary

PG. 178-9 IN YOUR BOOK

PROBLEM 2 Conjecture or Theorem?

If you can prove that a conjecture is true, then it becomes a theorem.

1. The Alternate Interior Angle Conjecture states: "If two parallel lines are intersected by a transversal, then alternate interior angles are congruent."

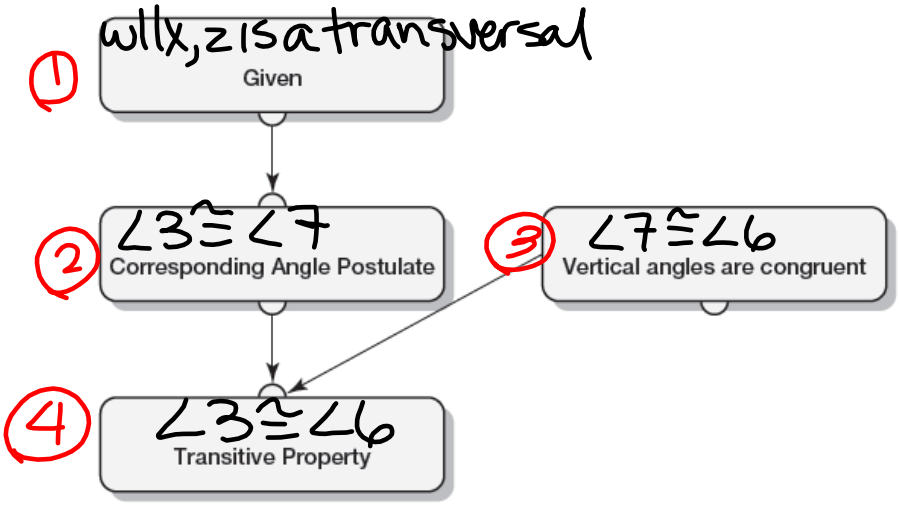


a. Use the diagram to write the "Given" and "Prove" statements for the Alternate Interior Angle Conjecture.

Given: $w \parallel x$, z is a transversal

Prove: $\angle 3 \cong \angle 6$

b. Complete the flow chart proof of the Alternate Interior Angle Conjecture by writing the reason for each statement in the boxes provided.



c. Create a two-column proof of the Alternate Interior Angle Theorem.

Statements	Reasons
1. $w \parallel x$, z is a transversal	1. Given
2. $\angle 3 \cong \angle 7$	2. Corresponding $\angle$s Post.
3. $\angle 7 \cong \angle 6$	3. Vertical $\angle$s are $\cong$
4. $\angle 3 \cong \angle 6$	4. Transitive Prop.

You have just proven the Alternate Interior Angle Conjecture. It is now known as the **Alternate Interior Angle Theorem.**

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PG. 180 IN YOUR BOOK

2. The Alternate Exterior Angle Conjecture states: "If two parallel lines are intersected by a transversal, then alternate exterior angles are congruent."

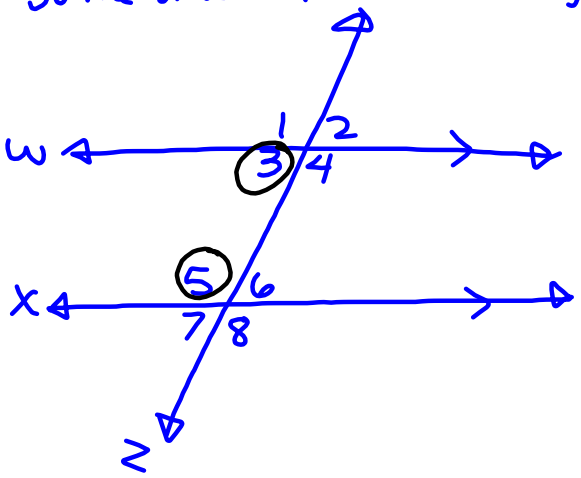
a. Draw and label a diagram illustrating the Alternate Exterior Angle Conjecture. Then,

You have just proven the Alternate Exterior Angle Conjecture. It is now known as the **Alternate Exterior Angle Theorem.**

pg 181

3) Same-side interior ∠ Conjecture

a.



Given: w ∥ x, z is a transversal

Prove: ∠3 & ∠5 are supplementary OR ∠4 & ∠6 are supplementary

b)

Statements	Reasons
1. w ∥ x, z is a transversal	1. Given
2. ∠1 & ∠3 are a linear pair	2. Definition of linear pair
3. ∠1 & ∠3 are supplementary	3. Linear Pair Post.
4. m∠1 + m∠3 = 180°	4. Definition of supplementary ∠s
5. ∠1 ≅ ∠5	5. Corresponding ∠ Post.
6. m∠1 = m∠5	6. Definition of ≅ ∠s
7. m∠3 + m∠5 = 180°	7. Substitution Prop.
8. ∠1 & ∠3 are supplementary ∠s	8. Definition of supplementary ∠s

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If two parallel lines are intersected by a transversal, then:

- corresponding angles are congruent.
- alternate interior angles are congruent.
- alternate exterior angles are congruent.
- same-side interior angles are supplementary.
- same-side exterior angles are supplementary.

Each of these relationships is represented by a postulate or theorem.

- **Corresponding Angle Postulate**: If two parallel lines are intersected by a transversal, then corresponding angles are congruent.
- **Alternate Interior Angle Theorem**: If two parallel lines are intersected by a transversal, then alternate interior angles are congruent.
- **Alternate Exterior Angle Theorem**: If two parallel lines are intersected by a transversal, then alternate exterior angles are congruent.
- **Same-Side Interior Angle Theorem**: If two parallel lines are intersected by a transversal, then interior angles on the same side of the transversal are supplementary.
- **Same-Side Exterior Angle Theorem**: If two parallel lines are intersected by a transversal, then exterior angles on the same side of the transversal are supplementary.

2. Did you use inductive or deductive reasoning to prove each theorem?

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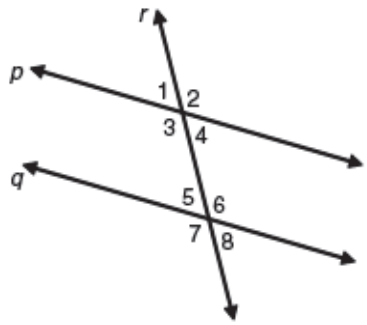
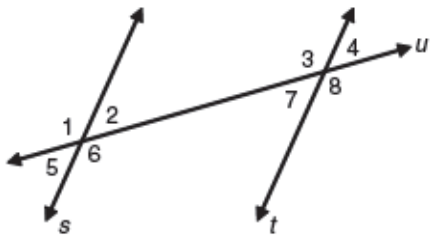
1. Use the given information to determine the measures of each of the numbered angles.

a. $p \parallel q$ and $m\angle 1 = 54°$

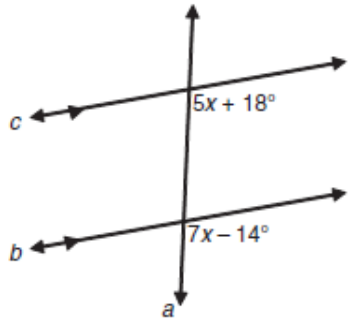


b. $s \parallel t$ and $m\angle 1 = 137°$

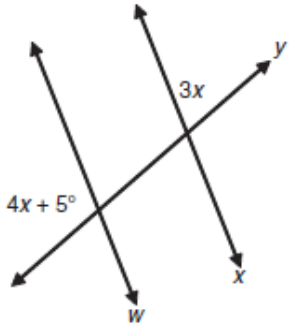


3. Solve for x in each figure.

a.

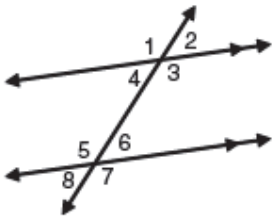


b.

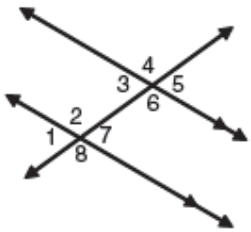


5. Determine the relationship between the indicated angles and write a postulate or theorem that justifies your answer.

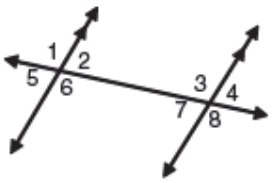
a. Angles 2 and 8



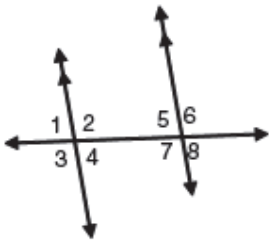
b. Angles 6 and 7



c. Angles 1 and 4



d. Angles 4 and 5



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Homework

Finish 2.4

Aug 24-2:00 PM