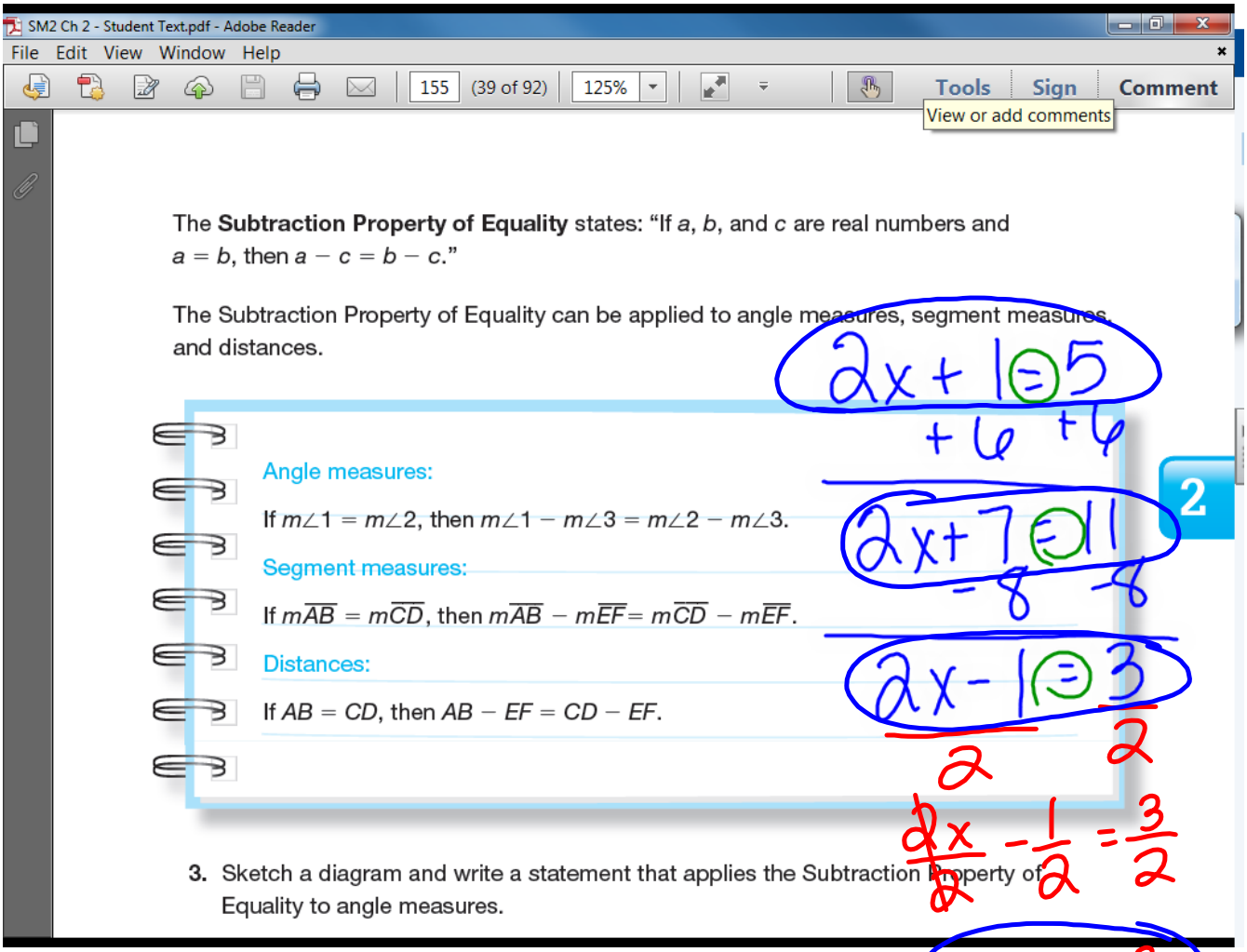
Questions on lesson 2.3?

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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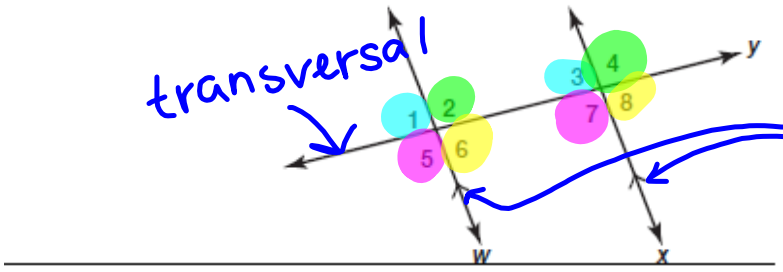
The **Subtraction Property of Equality** states: "If a, b, and c are real numbers and $a = b$, then $a - c = b - c$."
The Subtraction Property of Equality can be applied to angle measures, segment measures, and distances.
Angle measures:
If $m\angle 1 = m\angle 2$, then $m\angle 1 - m\angle 3 = m\angle 2 - m\angle 3$.
Segment measures:
If $m\overline{AB} = m\overline{CD}$, then $m\overline{AB} - m\overline{EF} = m\overline{CD} - m\overline{EF}$.
Distances:
If $AB = CD$, then $AB - EF = CD - EF$.
3. Sketch a diagram and write a statement that applies the Subtraction Property of Equality to angle measures.
2x + 1 = 5
+6 +6
2x + 7 = 11
-8 -8
2x - 1 = 3
2 2
2x/2 - 1/2 = 3/2
x - 1/2 = 3/2

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."

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, ∠6≅∠3

congruent

b. alternate exterior angles.

∠5≅∠4, ∠1≅∠8

congruent

c. same-side interior angles

∠6≅∠7, ∠2≅∠3

d. same-side exterior angles

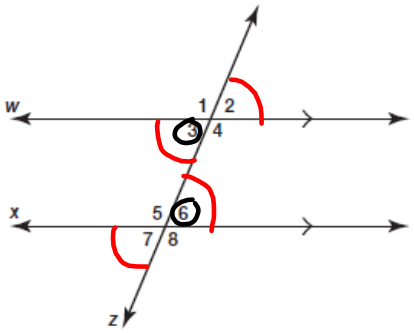
∠5≅∠8, ∠1≅∠4

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 ∥ x, and z is a transversal (If 2 lines are intersected by a transversal)

Prove: ∠3 ≅ ∠6 (alternate interior ∠s are ≅)

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

w ∥ x, and z is a transversal
Given

∠3 ≅ ∠7
Corresponding Angle Postulate

∠7 ≅ ∠6
Vertical angles are congruent

∠3 ≅ ∠6
Transitive Property

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

Statements	Reasons
1. w ∥ x, z is a transversal	1. Given
2. ∠3 ≅ ∠7	2. Corresponding Angle Post.
3. ∠7 ≅ ∠6	3. Vertical ∠s are ≅
4. ∠3 ≅ ∠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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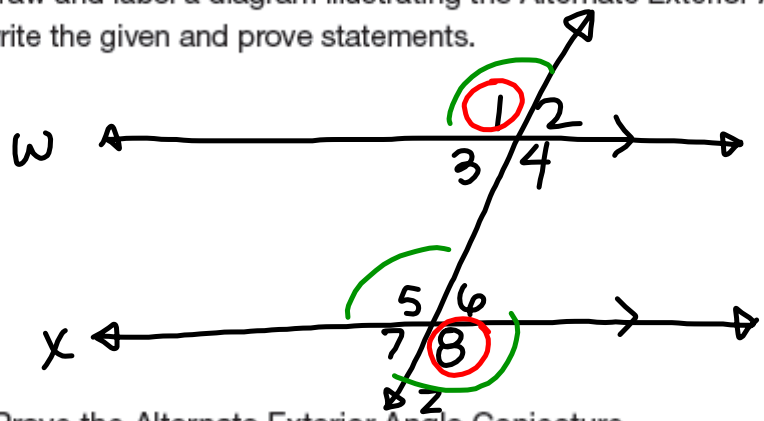
PG. 180 IN YOUR BOOK

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, write the given and prove statements.



Given: w ∥ x, and z is a transversal

Prove: ∠1 ≅ ∠8 OR ∠2 ≅ ∠7

b. Prove the Alternate Exterior Angle Conjecture.

Statements	Reasons
1. w ∥ x, and z is a transversal	1. Given
2. ∠1 ≅ ∠5	2. Corresponding ∠ Post.
3. ∠5 ≅ ∠8	3. Vertical ∠s are ≅
4. ∠1 ≅ ∠8	4. Transitive Prop.

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

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PG. 184 IN YOUR BOOK

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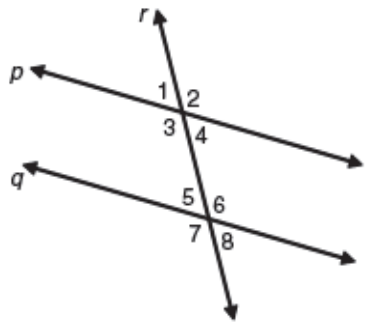
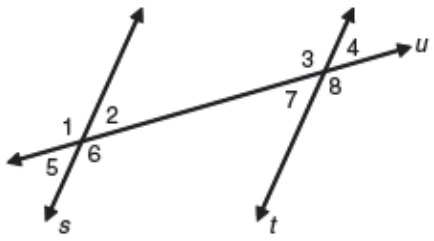
1. Use the given information to determine the measures of each of the numbered angles.

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

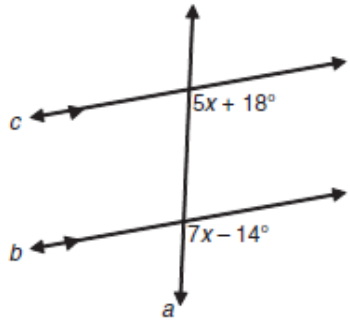


b. $s \parallel t$ and $m\angle 1 = 137°$

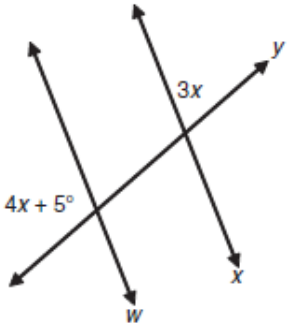


3. Solve for x in each figure.

a.

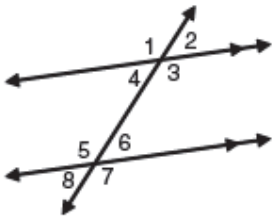


b.

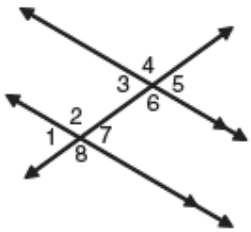


5. Determine the relationship between the indicated angles and write a postulate or theorem that justifies your answer.

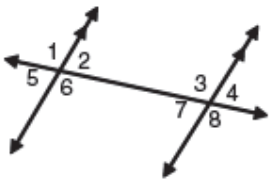
a. Angles 2 and 8



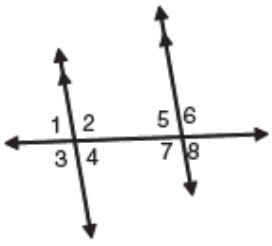
b. Angles 6 and 7



c. Angles 1 and 4



d. Angles 4 and 5



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Homework

Finish 2.4

Aug 24-2:00 PM