## 3.2 Parallel Lines & Transversals DAY ONE CYU

☑ Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

**N** Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Corresponding Angles	1, 4, 5	4, 5	5, 7
Alternate Interior Angles (AIA)	5	3, 5	3, 5, 7
Alternate Exterior Angles (AEA)	5	5	5, 7
Same-Side Interior Angles (SSIA)	3, 5	2, 3, 5	2, 3, 5, 6, 7
Same-Side Exterior Angles (SSEA)	2, 5	3, 5	3, 5, 7
Consecutive Interior Angles	3, 5	2, 3, 5	2, 3, 5, 6, 7
Consecutive Exterior Angles	2, 5	3, 5	3, 5, 7
Vertical Angles	5	2	7
Linear Pair	5	2, 3	3, 7
Converse & Truth Value	9	9	9

1. Tell which theorem you use in the image provided. Then determine the angle measure for 1 and 2.
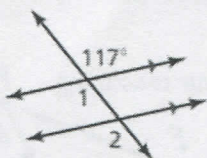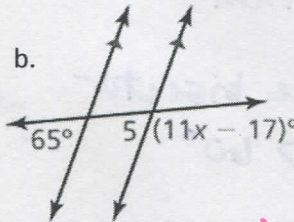
$m\angle 1 = 117° \rightarrow$ Def of vertical ∢'s

$m\angle 2 = 117° \rightarrow$ AEA Theorem

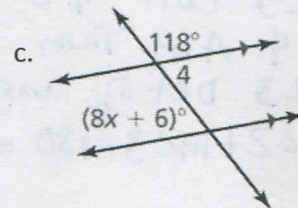2. Find the value of x. Show your steps.

a.
72°
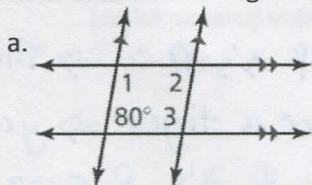$(7x + 24)°$

$72 + (7x + 24) = 180$

$X = 12$

b.
65° 5 $(11x - 17)°$
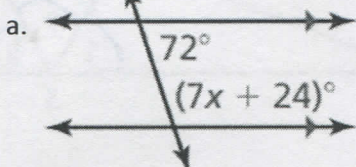
$65 + (11x - 17) = 180$
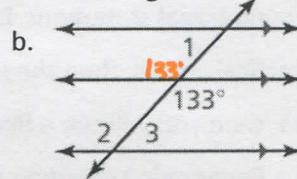
$X = 12$

$m\angle 5 = 65°$

c.
118°
4
$(8x + 6)°$

$118 + (8x + 6) = 180$

$X = 7$

$m\angle 4 = 62°$

3. Find the measures of angles 1, 2, & 3. Explain your reasoning in words or algebraically.

a.
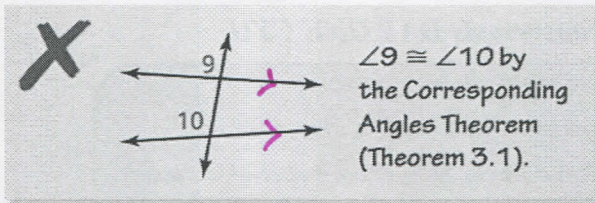1 2
80° 3

$m\angle 1 = 100°$
$m\angle 2 = 80°$
$m\angle 3 = 100°$

SSIA ∠1 & ∠3
R supp. when
⟺ R ∥.

b.
1
133°
2 3

$m\angle 1 = 47°$
$m\angle 2 = 133°$
$m\angle 3 = 47°$

SSIA ∠3 & 133°
∠2 & ∠3 R a linear pair
vertical ∢'s ⟺ SSIA w/ 133° & ∠1.

4. Describe & correct the error in the reasoning.

∠9 ≅ ∠10 by the Corresponding Angles Theorem (Theorem 3.1).
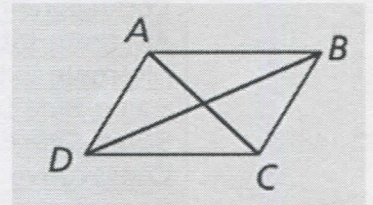
corr. ∡'s R only ≅ if ⟷ R //.

⇒ make ⟷ //.

5. **HOW DO YOU SEE IT?** Use the diagram provided.

   a. Name two pairs of congruent angles when $\overline{AD}$ & $\overline{BC}$ are parallel. Explain your reasoning.

   AIA ⇒ ∠ADB ≅ ∠CBD; ∠CAD ≅ ∠ACB

   b. Name two pairs of supplementary angles when $\overline{AB}$ & $\overline{DC}$ are parallel. Explain your reasoning.

   SSIA ⇒ ∠BAD & ∠CDA; ∠ABC & ∠DCB

6. **CRITICAL THINKING:** Is it possible for consecutive interior angles to be congruent? Explain. Yes;

   If 2 // ⟷ R cut by ⊥ transversal, ⇒ SSIA will both be right angles.

7. **REASONING:** In the diagram, ∠4 ≅ ∠5 and $\overline{SE}$ bisects ∠RSF. Find m∠1. Explain your reasoning.

   m∠1 = 60°
   ∠1 ≅ ∠5 corr ∡'s Thm
   ∠2 ≅ ∠4 AIA Thm
   ∠2 ≅ ∠3 Def of angle bisector
   m∠1 + m∠2 + m∠3 = 180 ⇒ 60°
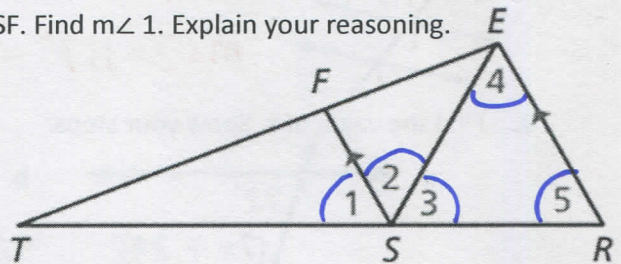
8. **MATHEMATICAL CONNECTIONS:** Write and solve a system of linear equations to find the values of x and y.

   $2x + 2y + 12 = 180$
   $4x + y + 6 = 180$

   X = 30
   y = 54
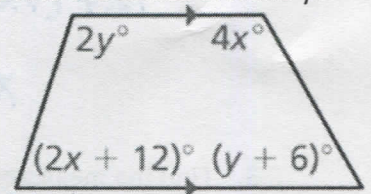
9. Write the converse of the conditional statement. Decide the truth-value (true or false.)

   False a. If two angles are vertical angles, then they are congruent. If ∡'s R ≅ ⇒ They R vertical.

   False b. If you go to the zoo, then you will see a tiger. AIA ✓ Safari If you see a tiger ⇒ you go to the zoo.

   False c. If two angles form a linear pair, then they are supplementary. If ∡'s R supp. ⇒ linear pair.

   False d. If it is warm outside, then we will go to the park. winter If you go to the park, ⇒ warm outside.

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*
Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

| 1 2 | 3 4 5 | 6 7 8 |
| Basic | Intermediate | Advanced Solved ALL! |