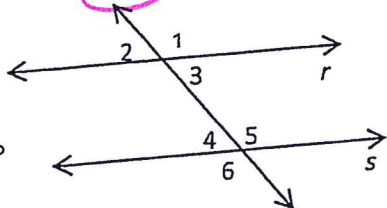


2.5 Review + Multiple Choice

Key

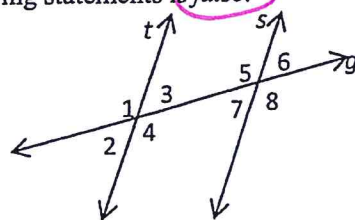
1. In the diagram line r is parallel to line s . Which of the following statements must be true?

- A. $m\angle 3 = m\angle 5$
- B. $m\angle 5 = m\angle 4$
- C. $m\angle 2 + m\angle 3 = 180^\circ$
- D. $m\angle 2 = m\angle 4$



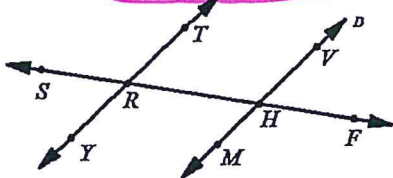
2. Given: line $t \parallel$ line s and neither is perpendicular to line g . Which of the following statements is false?

- A. $m\angle 2 + m\angle 5 = 180^\circ$
- B. $m\angle 1 = m\angle 7$
- C. $m\angle 3 + m\angle 5 = 180^\circ$
- D. $m\angle 2 = m\angle 3$



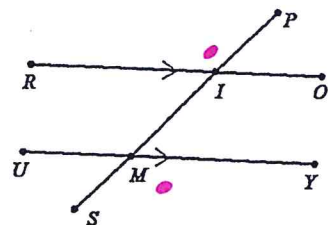
3. In the diagram $\overleftrightarrow{YT} \parallel \overleftrightarrow{MV}$ and $m\angle YRH = 100^\circ$. Which of the following conclusions does not have to be true?

- A. $m\angle MHF = 100^\circ$
- B. $m\angle RHM = 80^\circ$
- C. $\angle SRT$ and $\angle MHF$ are alternate exterior angles
- D. $\angle SRY$ and $\angle RHV$ are alternate interior angles



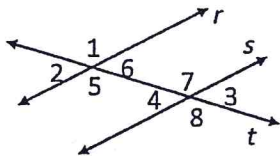
4. Based on the diagram, which theorem or postulate would support the statement $m\angle RIP = m\angle SMY$?

- A. Alternate Exterior Angles Theorem
- B. Alternate Interior Angles Theorem
- C. Consecutive Interior Angles Theorem
- D. Corresponding \angle s Postulate



5. In the diagram below, $\angle 2 \cong \angle 3$. Which of the following must be true?

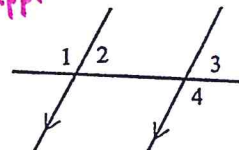
- A. $r \perp t$
- B. $m\angle 8 = m\angle 6$
- C. $m\angle 4 = m\angle 6$
- D. $m\angle 5 = m\angle$



6. Which type of angles are a counterexample to the conjecture below?

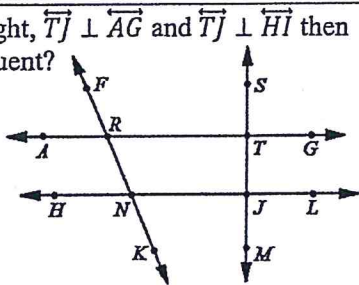
"If two lines are parallel, then each pair of angles are supplementary". not supp.

- A. $\angle 1, \angle 2$
- B. $\angle 3, \angle 1$
- C. $\angle 4, \angle 2$
- D. $\angle 1, \angle 4$



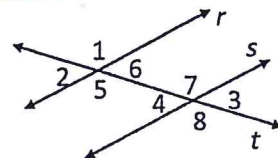
7. In the diagram to the right, $\overleftrightarrow{TJ} \perp \overleftrightarrow{AG}$ and $\overleftrightarrow{TJ} \perp \overleftrightarrow{HI}$ then which angles are congruent?

- A. $\angle ARF, \angle NRA$
- B. $\angle FRT, \angle RNH$
- C. $\angle LNR, \angle ARN$
- D. $\angle FRG, \angle KNJ$



8. In the diagram below, $m\angle 6 + m\angle 7 = 180^\circ$. Which of the following does not have to be true?

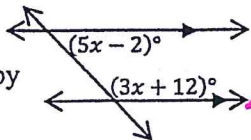
- A. $m\angle 1 + m\angle 4 = 180^\circ$
- B. $m\angle 5 + m\angle 4 = 180^\circ$
- C. $r \parallel s$
- D. $m\angle 2 = m\angle 7$



9. Allison wanted to solve for x , so she set up the equation $(5x - 2)^\circ + (3x + 12)^\circ = 180^\circ$. What would her reasoning be?

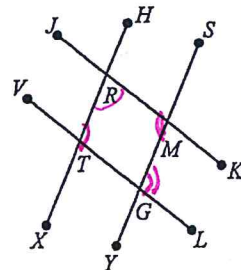
"If two parallel lines are intersected by transversal, then..."

- A. linear pairs are supplementary."
- B. corresponding angles are supplementary."
- C. alternate interior angles are congruent."
- D. consecutive (same-side) interior angles are supplementary."



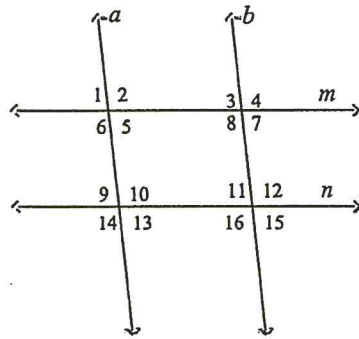
10. In the diagram below, which pair of angles are alternate interior angles?

- A. $\angle TRM$ and $\angle TGM$
- B. $\angle HTL$ and $\angle YGL$
- C. $\angle JMG$ and $\angle SGL$
- D. $\angle KRT$ and $\angle HTG$



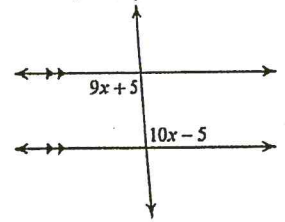
11. Use the diagram to determine which of the pair of angles is alternate exterior angles.

- A. $\angle 1$ and $\angle 15$
 B. $\angle 9$ and $\angle 15$
 C. $\angle 4$ and $\angle 11$
 D. $\angle 2$ and $\angle 8$



12. To solve for x in the diagram below, Betty used the equation $9x + 5 = 10x - 5$.

Betty can justify her equation by the following statement:

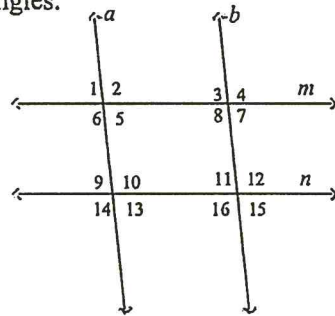


"If two parallel lines are intersected by a transversal, then ...

- A. alternate interior angles are congruent.
 B. alternate exterior angles are congruent.
 C. corresponding angles are congruent.
 D. consecutive interior angles are supplementary.

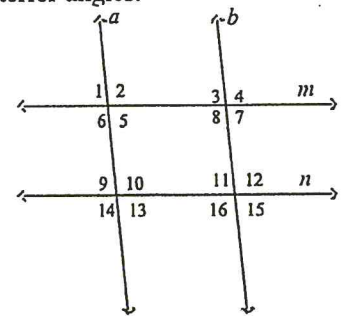
13. Use the diagram to determine which of the pair of angles is corresponding angles.

- A. $\angle 2$ and $\angle 10$
 B. $\angle 8$ and $\angle 11$
 C. $\angle 4$ and $\angle 10$
 D. $\angle 10$ and $\angle 12$



14. Use the diagram to determine which of the pair of angles is consecutive interior angles.

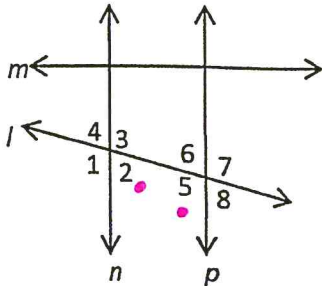
- A. $\angle 3$ and $\angle 11$
 B. $\angle 13$ and $\angle 16$
 C. $\angle 9$ and $\angle 13$
 D. $\angle 10$ and $\angle 13$



EXTRA PRACTICE

1. Given: $m\angle 2 = (5x - 3)^\circ$,
 $m\angle 5 = (11x - 41)^\circ$,
 $n \perp m$, $p \perp m$

Prove: $x = 14$



Statements

1. $m\angle 2 = (5x - 3)^\circ$, $m\angle 5 = (11x - 41)^\circ$, $n \perp m$, $p \perp m$

$$5x - 3 + 11x - 41 = 180^\circ$$

$$16x - 44 = 180^\circ$$

$$\frac{16x}{16} = \frac{224}{16}$$

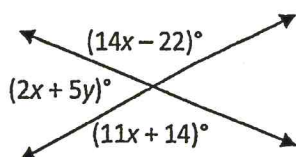
$$x = 14 \checkmark$$

Reasons

1. Given
 2. Supp. Angles.
 3. C.L.T
 4. Add 44
 5. Divide by 16

proven

2. Solve for x and y . Explain your reasoning for each equation you set up!



Find x

$$14x - 22 = 11x + 14 \text{ vertical angles}$$

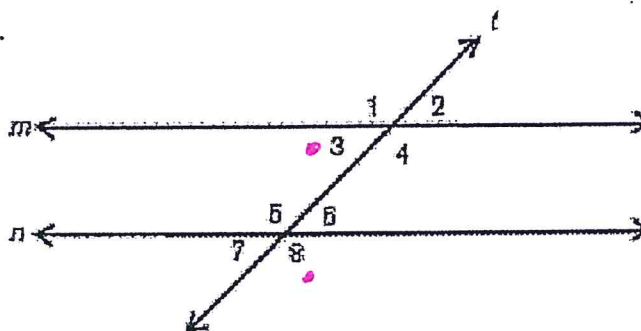
$$\frac{3x}{3} = \frac{36}{3} \quad \boxed{x = 12}$$

Find y

$$2(12) + 5y + 11(12) + 14 = 180^\circ$$

$$5y + 170 = 180^\circ \quad / \quad \frac{5y}{5} = \frac{10}{5} \quad \boxed{y = 2}$$

For #8 and #9, use the diagram to the right.



8. Given: $m \parallel n$

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

| Statements | Reasons |
|------------------------------|-------------------------|
| 1) $m \parallel n$ | 1) Given |
| 2) $\angle 2 \cong \angle 6$ | 2) Corresponding angles |
| 3) $\angle 2 \cong \angle 3$ | 3) Vertical angles |
| 4) $\angle 6 \cong \angle 3$ | 4) Replace. |

9. Given: $m \parallel n$

Prove: $m\angle 3 + m\angle 8 = 180^\circ$

(4 points)

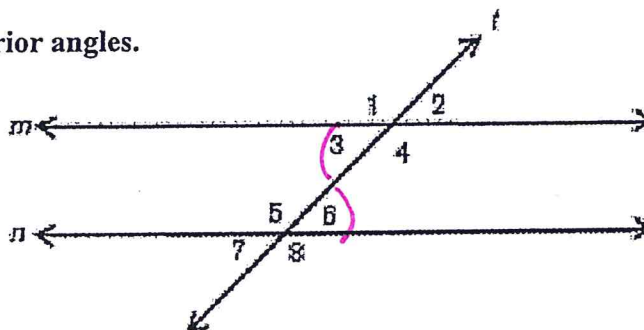
| Statement | Reason |
|--|-------------------------|
| 1) $m \parallel n$ | 1) Given |
| 2) $m\angle 3 \cong m\angle 6$ | 2) Alt. interior angles |
| 3) $m\angle 6 + m\angle 8 = 180^\circ$ | 3) Supp. Angles |
| 4) $m\angle 3 + m\angle 8 = 180^\circ$ | 4) Replace 3 by 6 |

Name: _____

1. I can identify pairs of alternate interior angles.

Circle all that apply.

- A) 1 and 2 **B) 3 and 6**
 C) 2 and 6 D) 4 and 6
 E) 3 and 5 **F) 4 and 5**



2. I can identify pairs of same side interior angles. Circle all that apply.

- A) 1 and 2 B) 3 and 6 **C) 3 and 5** **D) 4 and 6** E) 7 and 3 F) 1 and 5

3. I can identify pairs of corresponding angles. Circle all that apply.

- A) 1 and 2 B) 3 and 6 **C) 2 and 6** D) 4 and 6 **E) 7 and 3** F) 4 and 5

4. I can identify pairs of vertical angles. Circle all that apply.

- A) 1 and 4** B) 3 and 6 **C) 2 and 3** D) 4 and 6 E) 7 and 3 F) 1 and 5

5. In the diagram above, $m \parallel n$.

In the first row determine whether each pair of angles is *supplementary* or *congruent*.

In the 2nd row (justification row) identify the angle pairs as one of the following:

Alternate-Interior, Vertical, Linear Pair, Corresponding, or Same-Side Interior.

| Pair | 1 and 2 | 3 and 6 | 2 and 6 | 4 and 6 | 7 and 3 | 1 and 5 |
|-----------------------------|-----------------|-----------|---------------|----------------------|---------------|---------------|
| Supplementary/ Congruent | Supp | Alt. int | Congruent | Supp. | Congruent | Congruent |
| Justification | Supp. Angles | Congruent | Corresponding | Same Side int. | Corresponding | Corresponding |

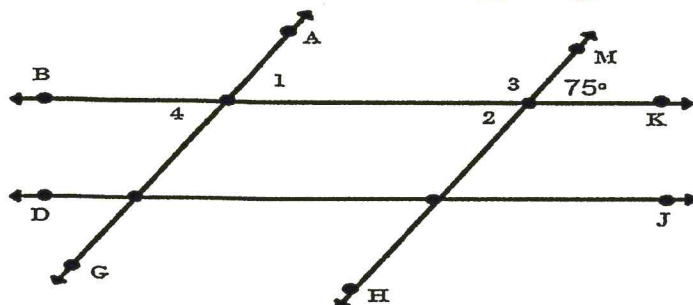
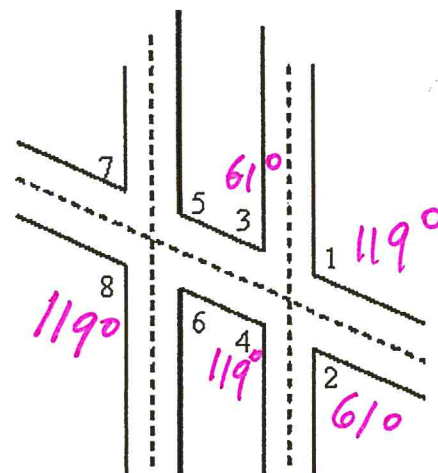
6. The diagram of an airport runway intersection shows two parallel runways. A taxiway crosses both runways.

- a. If $m\angle 8 = 119^\circ$, what is the sum of the measures of $\angle 1$ and $\angle 4$? Explain how you know using angle relationships or theorems/postulates. (2 points correct sum, 2 points explanation)

$$\angle 1 = 119^\circ \quad \angle 4 = 119^\circ$$

- b. How are $\angle 6$ and $\angle 2$ related? (1 point)

Corresponding Angles. They are Congruent.



7. Use the diagram above. For each of the following responses, determine whether the student correctly found the correct angle measure and gave a correct justification. (2 points each). (All boxes may not be filled).

| Angle Measure | Explanation for how the angle was determined | Is the student correct? | If you choose no, explain why the student is incorrect. |
|-------------------------|---|-------------------------|---|
| $m\angle 1 = 75^\circ$ | This angle corresponds to the given angle of 75° and corresponding angles of parallel lines are congruent. | yes | |
| $m\angle 2 = 75^\circ$ | $\angle 2$ is alternate interior with the given angle and alternate interior angles are congruent. | yes | |
| $m\angle 3 = 105^\circ$ | $\angle 3$ is a linear pair with $\angle 1$ therefore they add up to 180° and $180^\circ - 75^\circ = 105^\circ$. So $\angle 3 = 105^\circ$. | yes | |
| $m\angle 4 = 75^\circ$ | $\angle 4$ is vertical to $\angle 1$ and vertical angles are congruent. | yes. | |