

GUIDED PRACTICE

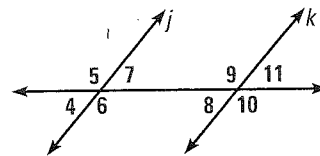
Vocabulary Check ✓

Concept Check ✓

Skill Check ✓

1. Sketch two parallel lines cut by a transversal. Label a pair of consecutive interior angles.

2. In the figure at the right, $j \parallel k$. How many angle measures must be given in order to find the measure of every angle? Explain your reasoning.



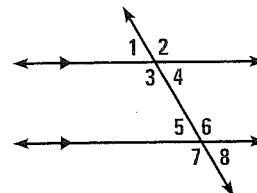
State the postulate or theorem that justifies the statement.

3. $\angle 2 \cong \angle 7$

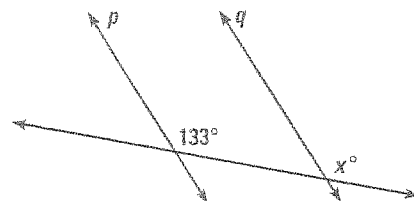
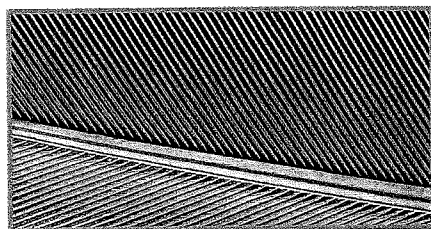
4. $\angle 4 \cong \angle 5$

5. $m\angle 3 + m\angle 5 = 180^\circ$

6. $\angle 2 \cong \angle 6$



7. In the diagram of the feather below, lines p and q are parallel. What is the value of x ?

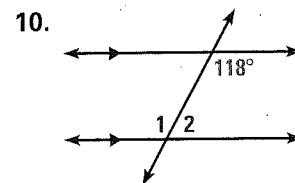
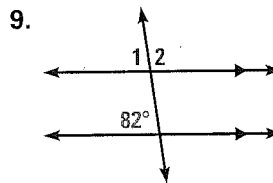
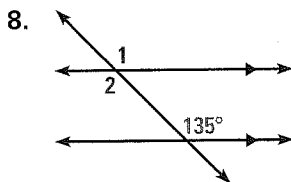


PRACTICE AND APPLICATIONS

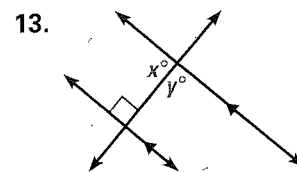
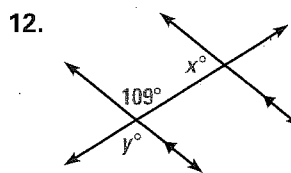
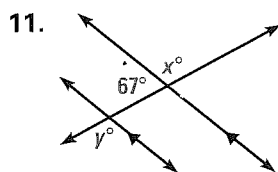
STUDENT HELP

Extra Practice to help you master skills is on p. 808.

USING PARALLEL LINES Find $m\angle 1$ and $m\angle 2$. Explain your reasoning.



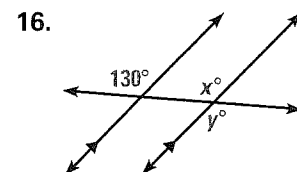
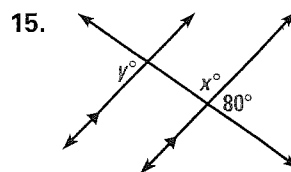
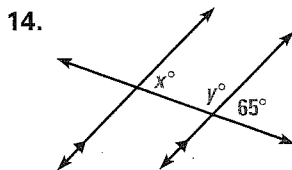
USING PARALLEL LINES Find the values of x and y . Explain your reasoning.



STUDENT HELP

HOMework HELP

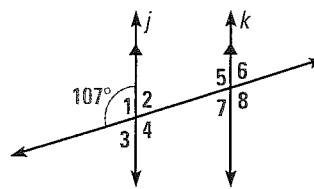
- Example 1: Exs. 27–29
- Example 2: Exs. 8–17
- Example 3: Exs. 8–17
- Example 4: Exs. 18–26
- Example 5: Ex. 30



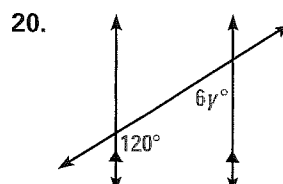
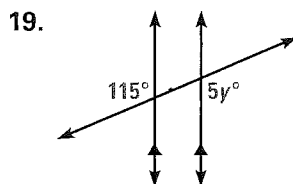
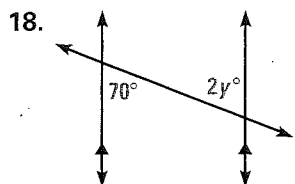
17. USING PROPERTIES OF PARALLEL LINES

Use the given information to find the measures of the other seven angles in the figure at the right.

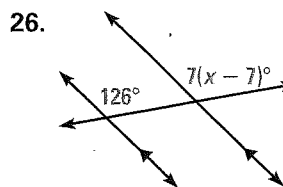
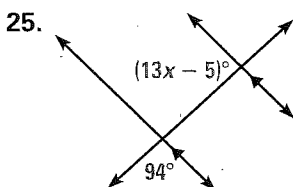
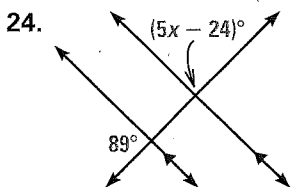
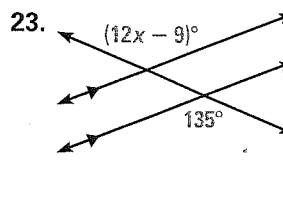
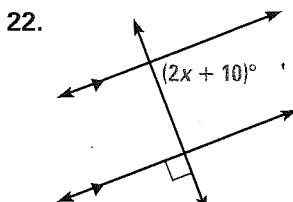
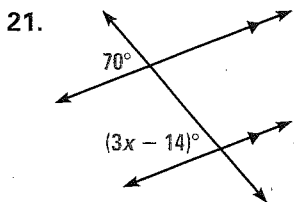
GIVEN $j \parallel k$, $m\angle 1 = 107^\circ$



28. USING ALGEBRA Find the value of y.



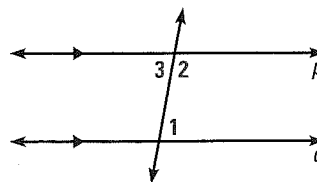
29. USING ALGEBRA Find the value of x.



27. DEVELOPING PROOF Complete the proof of the Consecutive Interior Angles Theorem.

GIVEN $p \parallel q$

PROVE $\angle 1$ and $\angle 2$ are supplementary.



STUDENT HELP
HOMEWORK HELP
 Visit our Web site
www.mcdougallittell.com
 for help with proving
 theorems in Exs. 27–29.

Statements	Reasons
1. <u> ?</u>	1. Given
2. $\angle 1 \cong \angle 3$	2. <u> ?</u>
3. <u> ?</u>	3. Definition of congruent angles
4. <u> ?</u>	4. Definition of linear pair
5. $m\angle 3 + m\angle 2 = 180^\circ$	5. <u> ?</u>
6. <u> ?</u>	6. Substitution prop. of equality
7. $\angle 1$ and $\angle 2$ are supplementary.	7. <u> ?</u>

STUDENT HELP

Study Tip

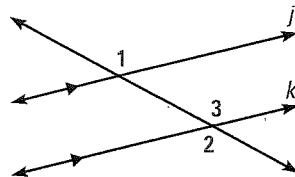
When you prove a theorem you may use any previous theorem, but you may not use the one you're proving.

PROVING THEOREMS 3.6 AND 3.7 In Exercises 28 and 29, complete the proof.

28. To prove the Alternate Exterior Angles Theorem, first show that $\angle 1 \cong \angle 3$. Then show that $\angle 3 \cong \angle 2$. Finally, show that $\angle 1 \cong \angle 2$.

GIVEN $\triangleright j \parallel k$

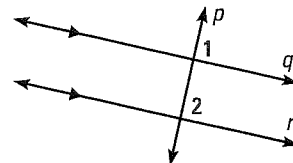
PROVE $\triangleright \angle 1 \cong \angle 2$



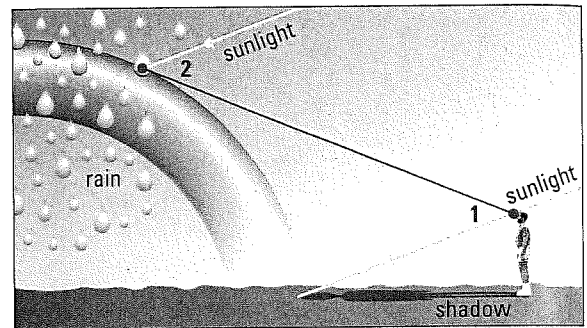
29. To prove the Perpendicular Transversal Theorem, show that $\angle 1$ is a right angle, $\angle 1 \cong \angle 2$, $\angle 2$ is a right angle, and finally that $p \perp r$.

GIVEN $\triangleright p \perp q, q \parallel r$

PROVE $\triangleright p \perp r$

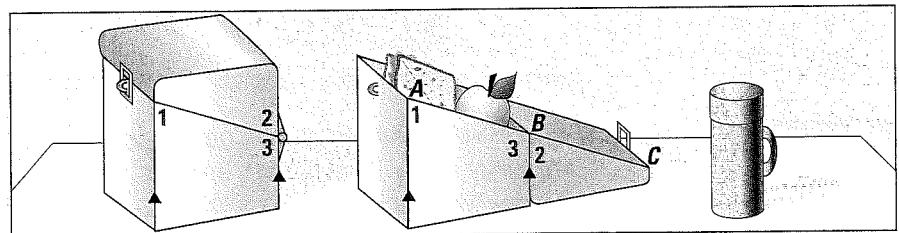


30. **FORMING RAINBOWS**
When sunlight enters a drop of rain, different colors leave the drop at different angles. That's what makes a rainbow. For red light, $m\angle 2 = 42^\circ$. What is $m\angle 1$? How do you know?



Test Preparation

31. **MULTI-STEP PROBLEM** You are designing a lunch box like the one below.



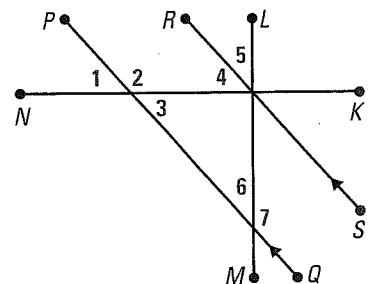
- The measure of $\angle 1$ is 70° . What is the measure of $\angle 2$? What is the measure of $\angle 3$?
- Writing* Explain why $\angle ABC$ is a straight angle.

★ Challenge

32. **USING PROPERTIES OF PARALLEL LINES**

Use the given information to find the measures of the other labeled angles in the figure. For each angle, tell which postulate or theorem you used.

GIVEN $\triangleright \overline{PQ} \parallel \overline{RS}$,
 $\overline{LM} \perp \overline{NK}$,
 $m\angle 1 = 48^\circ$



EXTRA CHALLENGE

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