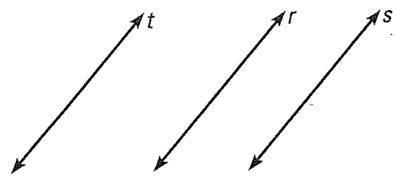
GUIDED PRACTICE

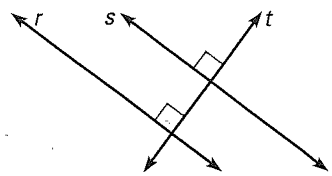
Concept Check ✓ 1. Name two ways, from this lesson, to prove that two lines are parallel.

Skill Check ✓ **State the theorem that you can use to prove that *r* is parallel to *s*.**

2. **GIVEN** ▸ $r \parallel t, t \parallel s$

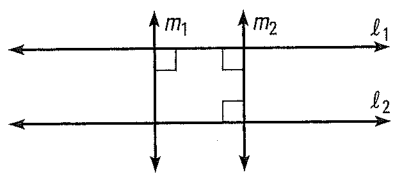


3. **GIVEN** ▸ $r \perp t, t \perp s$

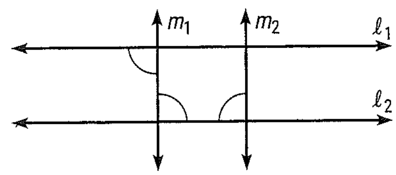


Determine which lines, if any, must be parallel. Explain your reasoning.

4.



5.



6. Draw any angle $\angle A$. Then construct $\angle B$ congruent to $\angle A$.

7. Given a line ℓ and a point P not on ℓ, describe how to construct a line through P parallel to ℓ.

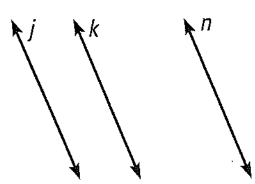
PRACTICE AND APPLICATIONS

STUDENT HELP

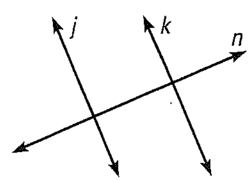
Extra Practice to help you master skills is on p. 808.

LOGICAL REASONING **State the postulate or theorem that allows you to conclude that $j \parallel k$.**

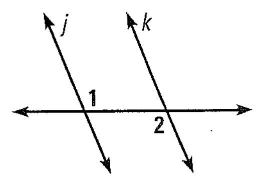
8. **GIVEN** ▸ $j \parallel n, k \parallel n$



9. **GIVEN** ▸ $j \perp n, k \perp n$

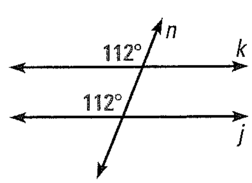


10. **GIVEN** ▸ $\angle 1 \cong \angle 2$

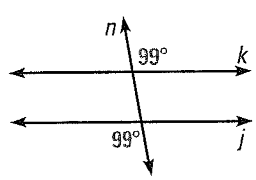


SHOWING LINES ARE PARALLEL **Explain how you would show that $k \parallel j$. State any theorems or postulates that you would use.**

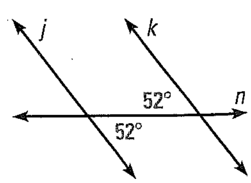
11.



12.



13.



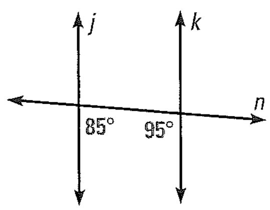
14. *Writing* Make a list of all the ways you know to prove that two lines are parallel.

STUDENT HELP

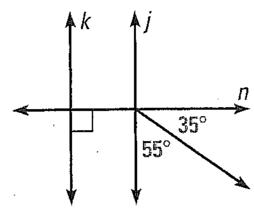
HOMEWORK HELP
Example 1: Exs. 8–24
Example 2: Exs. 8–24
Example 3: Exs. 8–24

SHOWING LINES ARE PARALLEL **Explain how you would show that $k \parallel j$.**

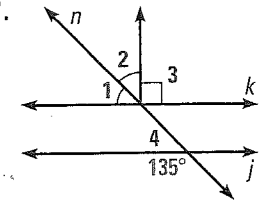
15.



16.

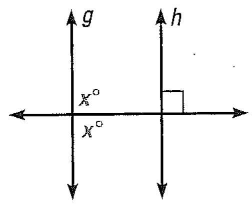


17.



USING ALGEBRA **Explain how you would show that $g \parallel h$.**

18.



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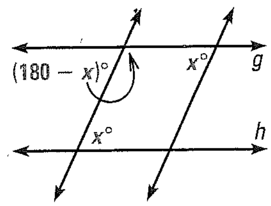

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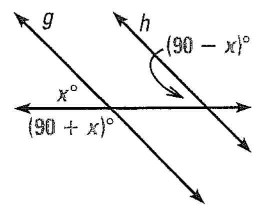
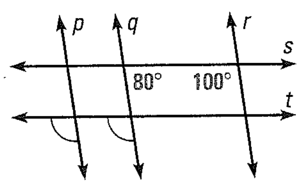


NAMING PARALLEL LINES **Determine which lines, if any, must be parallel. Explain your reasoning.**

21.



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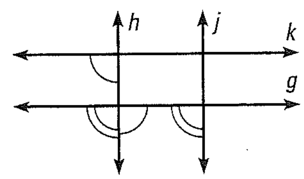

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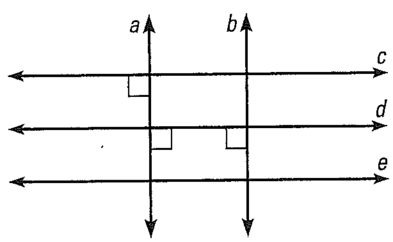

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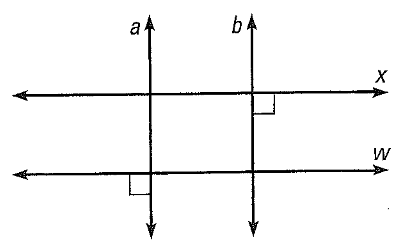


CONSTRUCTIONS **Use a straightedge to draw an angle that fits the description. Then use the *Copying an Angle* construction on page 159 to copy the angle.**

25. An acute angle

26. An obtuse angle

27. **CONSTRUCTING PARALLEL LINES** Draw a horizontal line and construct a line parallel to it through a point above the line.

28. **CONSTRUCTING PARALLEL LINES** Draw a diagonal line and construct a line parallel to it through a point to the right of the line.

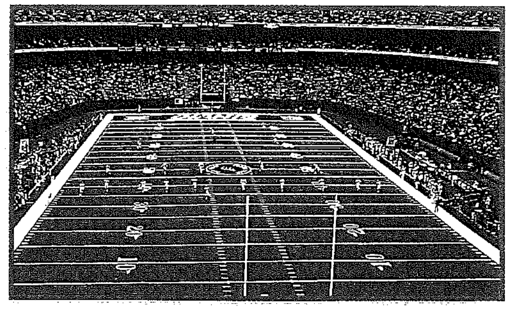
29. **JUSTIFYING A CONSTRUCTION** Explain why the lines in Exercise 28 are parallel. Use a postulate or theorem from Lesson 3.4 to support your answer.

STUDENT HELP

INTERNET

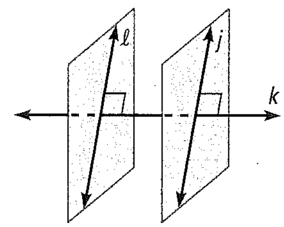
HOMEWORK HELP
Visit our Web site www.mcdougallittell.com for help with constructions in Exs. 25–29.

30. **FOOTBALL FIELD** The white lines along the long edges of a football field are called *sidelines*. *Yard lines* are perpendicular to the sidelines and cross the field every five yards. Explain why you can conclude that the yard lines are parallel.



31. **HANGING WALLPAPER** When you hang wallpaper, you use a tool called a *plumb line* to make sure one edge of the first strip of wallpaper is vertical. If the edges of each strip of wallpaper are parallel and there are no gaps between the strips, how do you know that the rest of the strips of wallpaper will be parallel to the first?

32. **ERROR ANALYSIS** It is given that $j \perp k$ and $k \perp \ell$. A student reasons that lines j and ℓ must be parallel. What is wrong with this reasoning? Sketch a counterexample to support your answer.



CATEGORIZING Tell whether the statement is *sometimes, always,* or *never* true.

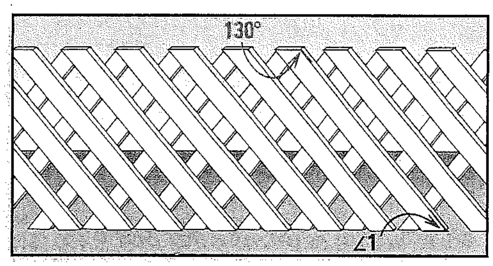
33. Two lines that are parallel to the same line are parallel to each other.

34. *In a plane*, two lines that are perpendicular to the same line are parallel to each other.

35. Two *noncoplanar* lines that are perpendicular to the same line are parallel to each other.

36. Through a point not on a line you can construct a parallel line.

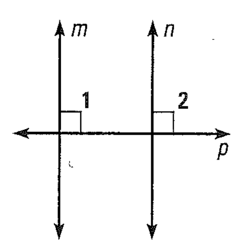
37. **LATTICEWORK** You are making a lattice fence out of pieces of wood called slats. You want the top of each slat to be parallel to the bottom. At what angle should you cut $\angle 1$?



38. **PROVING THEOREM 3.12** Rearrange the statements to write a flow proof of Theorem 3.12. Remember to include a reason for each statement.

GIVEN ▶ $m \perp p, n \perp p$

PROVE ▶ $m \parallel n$



$\angle 1 \cong \angle 2$	$n \perp p$	$\angle 1$ is a right $\angle$.
$m \parallel n$	$m \perp p$	$\angle 2$ is a right $\angle$.