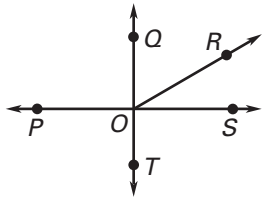
LESSON 3.2

NAME _____ DATE _____

# Challenge: Skills and Applications

**For use with pages 136–141**

**1.** Write a two-column proof.




**Given:**

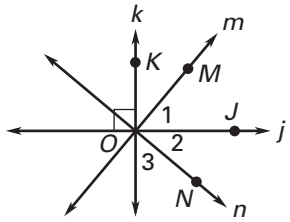
$\angle POT$ and $\angle TOS$ are a linear pair.

$\angle POT \cong \angle TOS$

**Prove:**

$\angle QOR$ and $\angle ROS$ are complementary.

**2.** Write a paragraph proof.



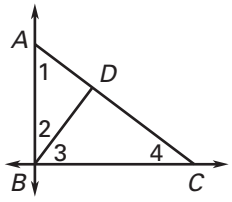

**Given:**

$j \perp k$; $\angle 1 \cong \angle 3$

**Prove:**

$m \perp n$

**3.** Write a flow proof.




**Given:**

$\angle 1$ and $\angle 2$ are complementary;

$\angle 1$ and $\angle 4$ are complementary;

$\angle 4$ and $\angle 3$ are complementary.

**Prove:**

$\overleftrightarrow{AB} \perp \overleftrightarrow{BC}$

**In Exercises 4–9, sketch the situtation, if possible, or explain why it is not possible.**

**4.** $\angle QOP$ and $\angle QOR$ are complementary, but $\angle POR$ is not a right angle.

**5.** $\angle WXY$ and $\angle WXZ$ are supplementary, and $\angle YXZ$ is a right angle.

**6.** $\overrightarrow{EG}$ bisects $\angle DEF$, and $\overrightarrow{EG} \perp \overleftrightarrow{DE}$.

**7.** $\angle DEG$ and $\angle GEF$ are complementary, $\overrightarrow{EG} \perp \overline{DF}$, and $\overrightarrow{EG}$ bisects $\angle DEF$.

**8.** There are three lines, $p$, $q$, and $r$, such that $p \perp q$, $q \perp r$, and $p \perp r$.

**9.** $A$, $B$, and $C$ are distinct points such that $A$ and $B$ are on line $j$; $\overleftrightarrow{AC} \perp j$; $\overleftrightarrow{BC} \perp j$.