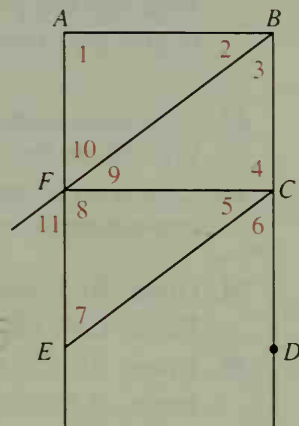## Written Exercises

In each exercise some information is given. Use this information to name the segments that must be parallel. If there are no such segments, write *none*.

**A**  **1.** $\angle 2 \cong \angle 9$    **2.** $\angle 6 \cong \angle 7$

**3.** $m\angle 1 = m\angle 8 = 90$    **4.** $\angle 5 \cong \angle 9$

**5.** $m\angle 2 = m\angle 5$    **6.** $\angle 3 \cong \angle 11$

**7.** $m\angle 1 = m\angle 4 = 90$    **8.** $m\angle 10 = m\angle 11$

**9.** $m\angle 8 + m\angle 5 + m\angle 6 = 180$

**10.** $\overline{FC} \perp \overline{AE}$ and $\overline{FC} \perp \overline{BD}$

**11.** $m\angle 5 + m\angle 6 = m\angle 9 + m\angle 10$

**12.** $\angle 7$ and $\angle EFB$ are supplementary.

**13.** $\angle 2$ and $\angle 3$ are complementary and $m\angle 1 = 90$.

**14.** $m\angle 2 + m\angle 3 = m\angle 4$

**15.** $m\angle 7 = m\angle 3 = m\angle 10$
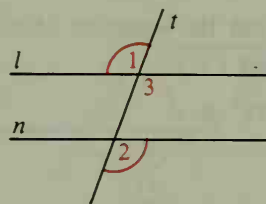
**16.** $m\angle 4 = m\angle 8 = m\angle 1$

**17.** Write the reasons to complete the proof: If two lines are cut by a transversal and alternate exterior angles are congruent, then the lines are parallel.

Given: Transversal $t$ cuts lines $l$ and $n$;
    $\angle 2 \cong \angle 1$

Prove: $l \parallel n$

**Proof:**

| Statements | Reasons |
|---|---|
| 1. $\angle 2 \cong \angle 1$ | 1. __?__ |
| 2. $\angle 1 \cong \angle 3$ | 2. __?__ |
| 3. $\angle 2 \cong \angle 3$ | 3. __?__ |
| 4. $l \parallel n$ | 4. __?__ |

Find the values of $x$ and $y$ that make the red lines parallel *and* the blue lines parallel.

**B**  **18.** $(x-40)^\circ$    $(x+40)^\circ$    $y^\circ$

**19.** $3x^\circ$    $105^\circ$    $2y^\circ$    $x^\circ$