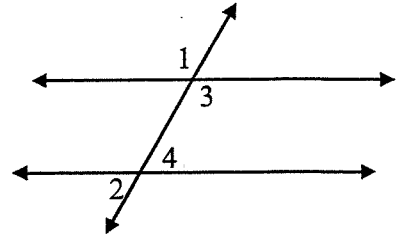


Begin Proofs: Day 5 Practice #1

Complete flow proofs for each. Write neatly. Use arrows to show "if...then" and brackets to show you are using a group of statements to form one conclusion. Support each statement with a reason by writing them in a column.



Given: $\angle 1$ and $\angle 2$ are supplementary
 Prove: $\angle 3$ and $\angle 4$ are supplementary

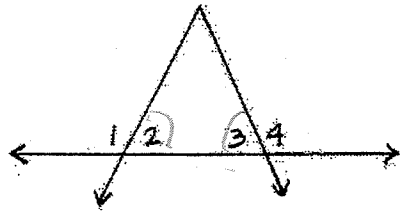
① $\angle 1$ & $\angle 2$ suppl. \rightarrow ② $m\angle 1 + m\angle 2 = 180$ } \rightarrow ⑤ $m\angle 3 + m\angle 2 = 180$
 ③ $\angle 1 \cong \angle 3 \rightarrow$ ④ $m\angle 1 = m\angle 3$ }
 ⑥ $\angle 2 \cong \angle 4 \rightarrow$ ⑦ $m\angle 2 = m\angle 4$ }

\rightarrow ⑧ $m\angle 3 + m\angle 4 = 180 \rightarrow$ ⑨ $\angle 3$ and $\angle 4$ suppl.

- ① Given
- ② Suppl. \angle s are 2 \angle s w/ total 180
- ③ Vertical \angle s \cong .
- ④ \cong \angle s have = measures.
- ⑤ Substitution Prop.
- ⑥ Vertical \angle s \cong .
- ⑦ \cong \angle s have = measures.
- ⑧ Substitution Prop.
- ⑨ Suppl. \angle s are 2 \angle s that total 180.

Given: $\angle 2 \cong \angle 3$

Prove: $\angle 1 \cong \angle 4$



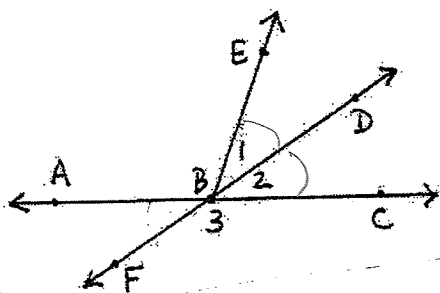
① $\angle 1$ & $\angle 2$ are linear pair. \rightarrow ② $\angle 1$ suppl $\angle 2 \rightarrow$ ③ $m\angle 1 + m\angle 2 = 180$
 $\angle 3$ & $\angle 4$ are linear pair \rightarrow $\angle 3$ suppl $\angle 4 \rightarrow m\angle 3 + m\angle 4 = 180$ }

\rightarrow ④ $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$ } \rightarrow ⑦ $m\angle 1 = m\angle 4 \rightarrow$ ⑧ $\angle 1 \cong \angle 4$
 ⑤ $\angle 2 \cong \angle 3 \rightarrow$ ⑥ $m\angle 2 = m\angle 3$ }

- ① Def. of linear pair.
- ② Linear pair is supplementary.
- ③ Suppl. \angle s are 2 \angle s total 180.
- ④ Substitution Prop
- ⑤ Given
- ⑥ \cong \angle s have = measures.
- ⑦ Subtraction Prop
- ⑧ \angle s w/ equal measures are \cong .

Given: \overline{BD} bisects $\angle EBC$

Prove: $\angle 1$ and $\angle 3$ are supplementary



① $\angle 2 + \angle 3$ are lin. pair \rightarrow ② $\angle 2$ supp $\angle 3 \rightarrow$ ③ $m\angle 2 + m\angle 3 = 180$
 ④ \overline{BD} bis. $\angle EBC \rightarrow$ ⑤ $\angle 1 \cong \angle 2 \rightarrow$ ⑥ $m\angle 1 = m\angle 2$

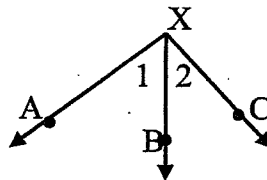
\rightarrow ⑦ $m\angle 1 + m\angle 3 = 180 \rightarrow$ ⑧ $\angle 1$ & $\angle 3$ supplementary.

- ① Def. of lin. pair.
- ② Linear pair is supp.
- ③ Supp. \angle s are 2 \angle s total 180.
- ④ Given
- ⑤ \angle bisector \div \angle into 2 \cong parts.

- ⑥ $\cong \angle$ s have = measurs.
- ⑦ Substitution Prop
- ⑧ \angle s that total 180 are supp \angle s.

Given: $\angle 1$ and $\angle 2$ are complementary

Prove: $\overline{XA} \perp \overline{XC}$ \leftarrow show sum = 90°



① $\angle 1$ & $\angle 2$ are complementary \rightarrow ② $m\angle 1 + m\angle 2 = 90$
 ③ $m\angle 1 + m\angle 2 = m\angle AXC$

\rightarrow ④ $m\angle AXC = 90 \rightarrow$ ⑤ $\angle AXC$ is a right \angle . \rightarrow ⑥ $\overline{XA} \perp \overline{XC}$

- ① Given
- ② Compl. \angle s are 2 \angle s that total 90.
- ③ Angle Add. Post.
- ④ Substitution Prop.
- ⑤ A rt \angle measures 90° .
- ⑥ \perp lines form rt. \angle s.