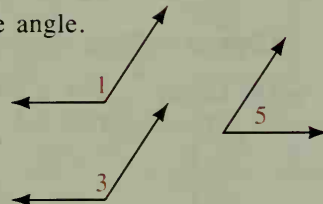
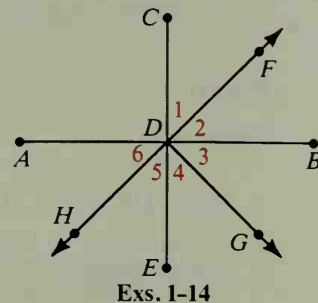


Written Exercises

Write the name or statement of the definition, postulate, property, or theorem that justifies the statement about the diagram.

- A**
- $AD + DB = AB$ *seg add post*
 - $m\angle 1 + m\angle 2 = m\angle CDB$ *addition*
 - $\angle 2 \cong \angle 6$ *vertical \angle s are \cong*
 - If D is the midpoint of \overline{AB} , then $AD = \frac{1}{2}AB$. *def of bis*
 - If \overrightarrow{DF} bisects $\angle CDB$, then $\angle 1 \cong \angle 2$. *def of \angle bis*
 - $m\angle ADF + m\angle FDB = 180$ *def of supp \angle s*
 - If $\overline{CD} \perp \overline{AB}$, then $m\angle CDB = 90$. *def of \perp lines*
 - If $\angle 4 \cong \angle 3$, then \overrightarrow{DG} bisects $\angle BDE$. *def of \angle bis*
 - If $m\angle 3 + m\angle 4 = 90$, then $\angle 3$ and $\angle 4$ are complements. *def of comp \angle s*
 - If $\angle ADF$ and $\angle 4$ are supplements, then $m\angle ADF + m\angle 4 = 180$. *def of supp \angle s*
 - If $\overline{AB} \perp \overline{CE}$, then $\angle ADC \cong \angle ADE$. *theorem 2-8*
 - If $\angle 4$ is complementary to $\angle 5$ and $\angle 6$ is complementary to $\angle 5$, then $\angle 4 \cong \angle 6$. *theorem 2-7*
 - If $\angle FDG$ is a right angle, then $\overrightarrow{DF} \perp \overrightarrow{DG}$. *def of \perp lines*
 - If $\angle FDG \cong \angle GDH$, then $\overrightarrow{DG} \perp \overrightarrow{HF}$. *def of \perp lines*
 - Copy everything shown and complete the proof of Theorem 2-7 for the case where two angles are supplements of the same angle.
 Given: $\angle 1$ and $\angle 5$ are supplementary;
 $\angle 3$ and $\angle 5$ are supplementary.
 Prove: $\angle 1 \cong \angle 3$



Proof:

Statements	Reasons
1. $\angle 1$ and $\angle 5$ are supplementary; $\angle 3$ and $\angle 5$ are supplementary.	1. <u>? given</u>
2. $m\angle 1 + m\angle 5 = 180$; $m\angle 3 + m\angle 5 = 180$	2. <u>? def of supp \angles</u>
3. $m\angle 1 + m\angle 5 = m\angle 3 + m\angle 5$	3. <u>? substitution prop</u>
4. $m\angle 5 = m\angle 5$	4. Reflexive Prop.
5. $m\angle 1 = m\angle 3$, or $\angle 1 \cong \angle 3$	5. <u>? subtraction prop of =</u>

- Are there any angles in the diagram that must be congruent to $\angle 4$? Explain.
 - If $\angle 4$ and $\angle 5$ are supplementary, name all angles shown that must be congruent to $\angle 4$.

