NAME Key DATE _____ SCORE _____

Deductive Reasoning

For use after Chapter 2

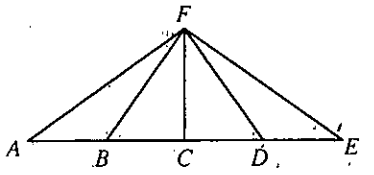
1. Write (a) the hypothesis, (b) the conclusion, and (c) the converse of the given statement:

   Vertical angles are supplementary if they are right angles.

   a. $\angle$s are rt. $\angle$s b. vert. $\angle$s supp.

   c. if vert. $\angle$s are supp., then they are rt. $\angle$s

Complete.



Exs. 2–10

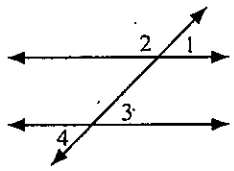
2. If $\overline{AF} \perp \overline{FD}$, then $m\angle AFD =$ 90.
3. If $\angle BFD$ and $\angle DFE$ are complementary and $m\angle BFD = 68$, then $m\angle DFE =$ 22.
4. If $m\angle FDE = 127$, then $m\angle ADF =$ 53.
5. If $m\angle AFD = m\angle BFE$, then $m\angle AFB = m\angle$ DFE.

Name or state the definition, postulate, or theorem that justifies the statement about the diagram.

6. If $\overrightarrow{FC}$ bisects $\angle AFE$, then $m\angle AFC = \frac{1}{2}m\angle AFE$. $\angle$ Bis. Thm.
7. If B is the midpoint of $\overline{AC}$, then $BC = \frac{1}{2}AC$. Mdpt. Thm.
8. If $AB = BC$, then $2 \cdot AB = 2 \cdot BC$. Mult. prop. =
9. If $\angle ACF \cong \angle ECF$, then $\overleftrightarrow{FC} \perp \overleftrightarrow{AE}$. $\cong$ adj. $\angle$s $\rightarrow$ $\perp$ lines
10. If $\overrightarrow{FB} \perp \overrightarrow{FE}$, then $\angle BFD$ and $\angle DFE$ are complementary. Ext. sides of 2 adj. acute $\angle$s $\perp \rightarrow$ $\angle$s comp.

Supply the missing reasons in the proof.

11. Given: $\angle 1 \cong \angle 3$
    Prove: $\angle 1 \cong \angle 4$



Proof:

Statements	Reasons
1. $\angle 1 \cong \angle 3$	1. Given
2. $\angle 3 \cong \angle 4$	2. Vert. $\angle$s $\cong$
3. $\angle 1 \cong \angle 4$	3. Transitive

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