

Study Guide

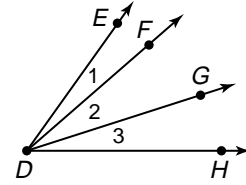
Verifying Angle Relationships

Many relationships involving angles can be proved by applying the rules of algebra, as well as the definitions and postulates of geometry.

Example: Given: $\angle EDG \cong \angle FDH$

Prove: $m\angle 1 = m\angle 3$

Proof:



Statements	Reasons
a. $\angle EDG \cong \angle FDH$	a. Given
b. $m\angle EDG = m\angle FDH$	b. Definition of congruent angles
c. $m\angle EDG = m\angle 1 + m\angle 2$ $m\angle FDH = m\angle 2 + m\angle 3$	c. Angle Addition Postulate
d. $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	d. Substitution Property (=)
e. $m\angle 1 = m\angle 3$	e. Subtraction Property (=)

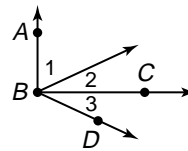
Complete the following proofs.

1. Given: $\overline{AB} \perp \overline{BC}$

$m\angle 2 = m\angle 3$

Prove: $m\angle 1 + m\angle 3 = 90$

Proof:



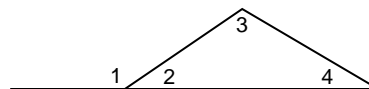
Statements	Reasons
a. $\overline{AB} \perp \overline{BC}$ $m\angle 2 = m\angle 3$	a. _____
b. $\angle ABC$ is a right angle.	b. _____
c. $m\angle ABC = 90$	c. _____
d. $m\angle ABC = m\angle 1 + m\angle 2$	d. _____
e. $m\angle 1 + m\angle 2 = 90$	e. _____
f. $m\angle 1 + m\angle 3 = 90$	f. _____

2. Given: $\angle 1$ and $\angle 2$ form a linear pair.

$m\angle 2 + m\angle 3 + m\angle 4 = 180$

Prove: $m\angle 1 = m\angle 3 + m\angle 4$

Proof:



Statements	Reasons
a. $\angle 1$ and $\angle 2$ form a linear pair. $m\angle 2 + m\angle 3 + m\angle 4 = 180$	a. _____
b. $\angle 1$ and $\angle 2$ are supplementary.	b. _____
c. $m\angle 1 + m\angle 2 = 180$	c. _____
d. $m\angle 1 + m\angle 2 =$ $m\angle 2 + m\angle 3 + m\angle 4$	d. _____
e. $m\angle 1 = m\angle 3 + m\angle 4$	e. _____