

# 4-5 Practice

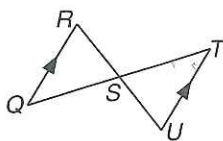
## Proving Congruence—ASA, AAS

1. Write a flow proof.

**Given:**  $S$  is the midpoint of  $\overline{QT}$ .

$\overline{QR} \parallel \overline{TU}$

**Prove:**  $\triangle QSR \cong \triangle TSU$

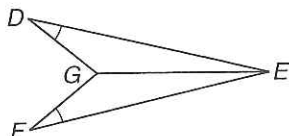


2. Write a paragraph proof.

**Given:**  $\angle D \cong \angle F$

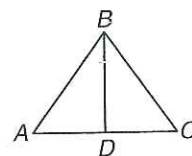
$\overline{GE}$  bisects  $\angle DEF$ .

**Prove:**  $\overline{DG} \cong \overline{FG}$



**ARCHITECTURE** For Exercises 3 and 4, use the following information.

An architect used the window design in the diagram when remodeling an art studio.  $\overline{AB}$  and  $\overline{CB}$  each measure 3 feet.



3. Suppose  $D$  is the midpoint of  $\overline{AC}$ . Determine whether  $\triangle ABD \cong \triangle CBD$ . Justify your answer.

4. Suppose  $\angle A \cong \angle C$ . Determine whether  $\triangle ABD \cong \triangle CBD$ . Justify your answer.

NAME \_\_\_\_\_ DATE \_\_\_\_\_ PERIOD \_\_\_\_\_

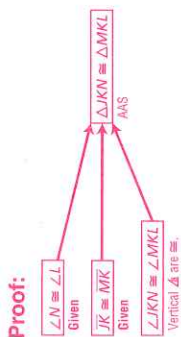
4-5 Skills Practice

Proving Congruence—ASA, AAS

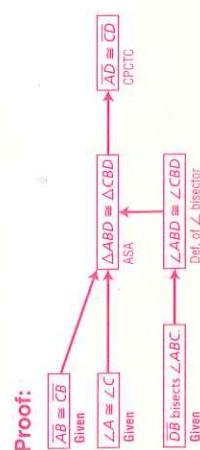
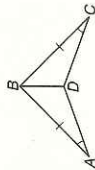
Write a flow proof.

1. Given:  $\angle N \cong \angle L$   
 $\overline{JK} \cong \overline{MK}$

Prove:  $\triangle JKN \cong \triangle MKL$



2. Given:  $\overline{AB} \cong \overline{CB}$   
 $\angle A \cong \angle C$   
 $\overline{DB}$  bisects  $\angle ABC$ .  
Prove:  $\overline{AD} \cong \overline{CD}$



3. Write a paragraph proof.  
Given:  $\overline{DE} \parallel \overline{FG}$   
 $\angle E \cong \angle G$   
Prove:  $\triangle DFG \cong \triangle FDE$



Proof: Since it is given that  $\overline{DE} \parallel \overline{FG}$ , it follows that  $\angle EDF \cong \angle GFD$ , because alt. int.  $\angle$ s are  $\cong$ . It is given that  $\angle E \cong \angle G$ . By the Reflexive Property,  $\overline{DF} \cong \overline{FD}$ . So  $\triangle DFG \cong \triangle FDE$  by AAS.

4-5 Practice (Average)

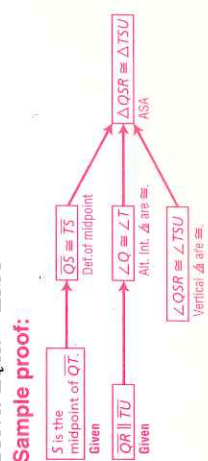
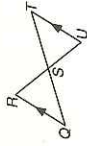
Proving Congruence—ASA, AAS

1. Write a flow proof.

Given:  $S$  is the midpoint of  $\overline{QT}$ .

$\overline{QR} \parallel \overline{TU}$

Prove:  $\triangle QSR \cong \triangle TSU$

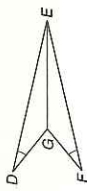


2. Write a paragraph proof.

Given:  $\angle D \cong \angle F$

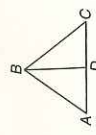
$\overline{GE}$  bisects  $\angle DEF$ .

Prove:  $\overline{DG} \cong \overline{FG}$



Proof: Since it is given that  $\overline{GE}$  bisects  $\angle DEF$ ,  $\angle DEG \cong \angle FEG$  by the definition of an angle bisector. It is given that  $\angle D \cong \angle F$ . By the Reflexive Property,  $\overline{GE} \cong \overline{GE}$ . So  $\triangle DEG \cong \triangle FEG$  by AAS. Therefore  $\overline{DG} \cong \overline{FG}$  by CPCTC.

ARCHITECTURE For Exercises 3 and 4, use the following information.  
An architect used the window design in the diagram when remodeling an art studio.  $\overline{AB}$  and  $\overline{CB}$  each measure 3 feet.



3. Suppose  $D$  is the midpoint of  $\overline{AC}$ . Determine whether  $\triangle ABD \cong \triangle CBD$ . Justify your answer.

Since  $D$  is the midpoint of  $\overline{AC}$ ,  $\overline{AD} \cong \overline{CD}$  by the definition of midpoint.  $\overline{AB} \cong \overline{CB}$  by the definition of congruent segments. By the Reflexive Property,  $\overline{BD} \cong \overline{BD}$ . So  $\triangle ABD \cong \triangle CBD$  by SSS.

4. Suppose  $\angle A \cong \angle C$ . Determine whether  $\triangle ABD \cong \triangle CBD$ . Justify your answer.  
We are given  $\overline{AB} \cong \overline{CB}$  and  $\angle A \cong \angle C$ .  $\overline{BD} \cong \overline{BD}$  by the Reflexive Property. Since SSA cannot be used to prove that triangles are congruent, we cannot say whether  $\triangle ABD \cong \triangle CBD$ .