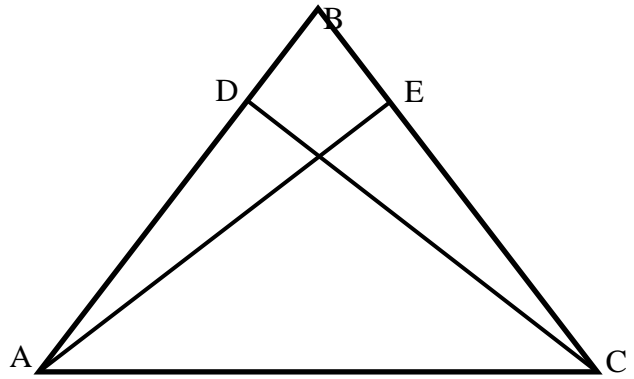


- 1) Given:  $\overline{CD}$  is the altitude to  $\overline{AB}$   
 $\overline{AE}$  is the altitude to  $\overline{BC}$   
 $\overline{CD} \cong \overline{AE}$

Prove:  $\triangle ABC$  is isosceles

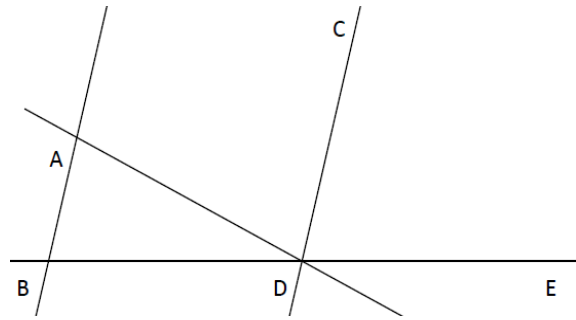


Statements

Reasons

Statements	Reasons

2) Given:  $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$   
 $\overleftrightarrow{DC}$  bisects  $\angle ADE$   
 Prove:  $\triangle ABD$  is isosceles



Statements

Reasons

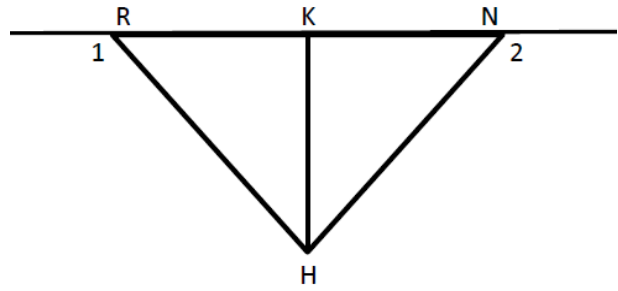
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3) Given:  $\angle 1 \cong \angle 2$

$\overline{HK}$  bisects  $\angle RHN$

$\overline{HR} \cong \overline{HN}$

Prove:  $\overline{HK} \perp \overline{RN}$



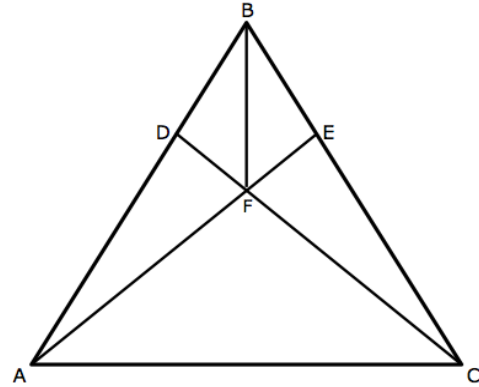
Statements	Reasons

4) Given:  $\angle FAC \cong \angle FCA$

$\overline{FD} \perp \overline{AB}$

$\overline{FE} \perp \overline{BC}$

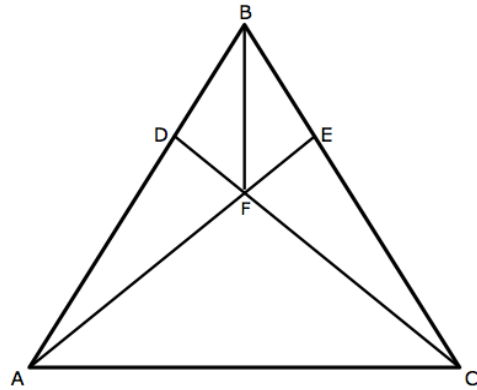
Prove:  $\overline{BF}$  bisects  $\angle DBE$



Statements	Reasons

5) Given:  $\overline{BD} \cong \overline{BE}$   
 $\overline{FD} \cong \overline{FE}$

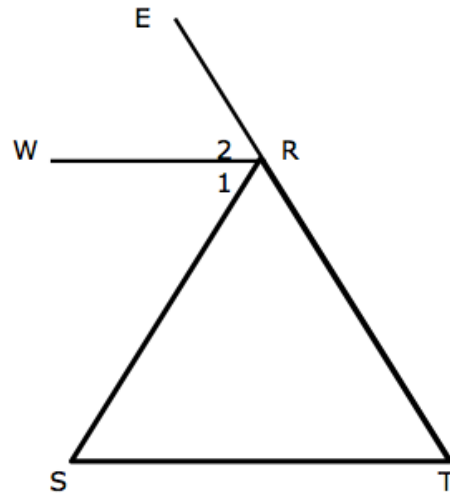
Prove:  $\triangle AFC$  is isosceles



Statements	Reasons

6) Given:  $\overline{WR} \parallel \overline{ST}$   
 $\overline{WR}$  bisects  $\angle SRE$

Prove:  $\triangle SRT$  is isosceles



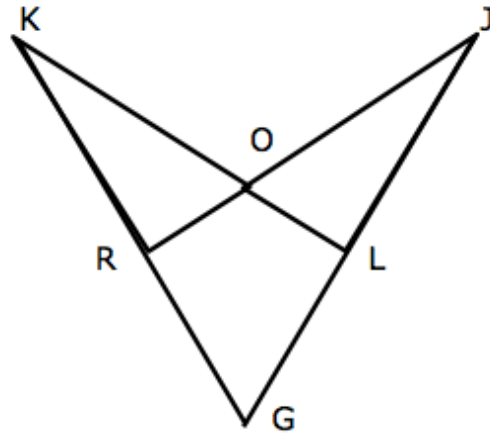
Statements	Reasons

7) Given:  $\overline{JR} \perp \overline{KG}$

$\overline{KL} \perp \overline{JG}$

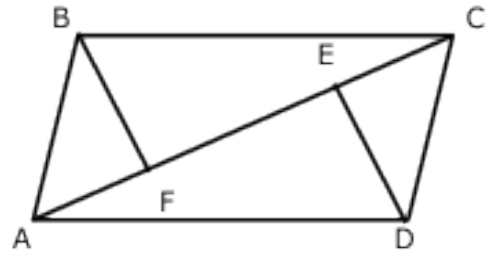
$\overline{KL} \cong \overline{JR}$

Prove:  $\triangle KLG \cong \triangle JRG$



Statements	Reasons

- 8) Given:  $\overline{BF} \perp \overline{AC}$   
 $\overline{DE} \perp \overline{AC}$   
 $\overline{AB} \cong \overline{DC}$   
 $\overline{AE} \cong \overline{CF}$



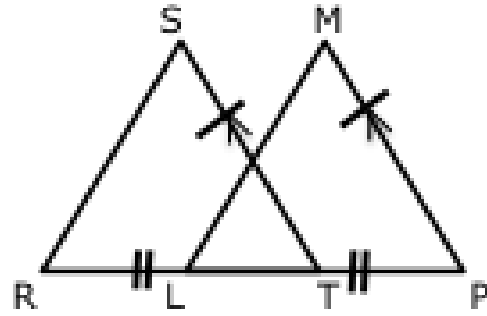
Prove:  $\triangle AFB \cong \triangle CED$

Statements	Reasons



9) Given:  $\overline{ST} \cong \overline{MP}$   
 $\overline{ST} \parallel \overline{MP}$   
 $\overline{RT} \cong \overline{LP}$

Prove:  $\overline{RS} \parallel \overline{LM}$

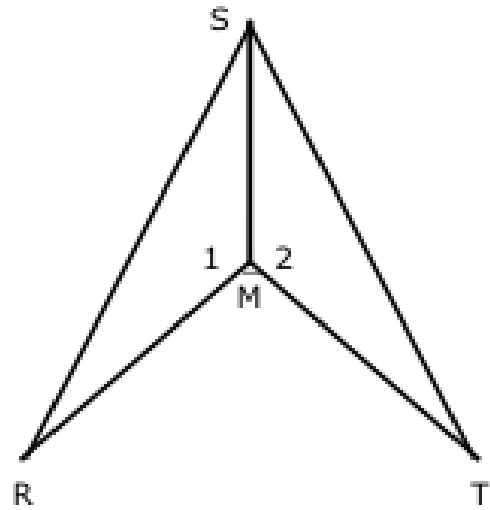


Statements	Reasons

10) Given:  $\angle 1 \cong \angle 2$

$$\overline{RM} \cong \overline{TM}$$

Prove:  $\overline{SM}$  bisects  $\angle RST$

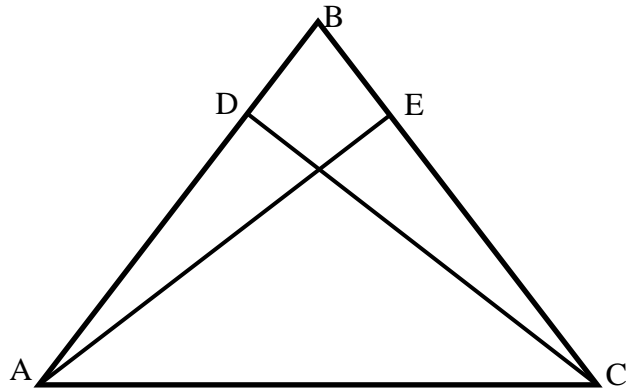


Statements	Reasons

Triangle Proof Test (Modified)

**Proof Case #1**

Given:  $\overline{CD}$  is the altitude to  $\overline{AB}$   
 $\overline{AE}$  is the altitude to  $\overline{BC}$   
 $\overline{CD} \cong \overline{AE}$   
 Prove:  $\triangle ABC$  is isosceles



Plan: Our goal is to show  $\angle BAC = \angle BCA$  by proving  $\triangle ADC \cong \triangle CEA$ . The diagram suggests the Hypotenuse-Leg Postulate may be used if  $\overline{AC} \cong \overline{AC}$  (Hypotenuse) and  $\overline{CD} \cong \overline{AE}$  (Leg).

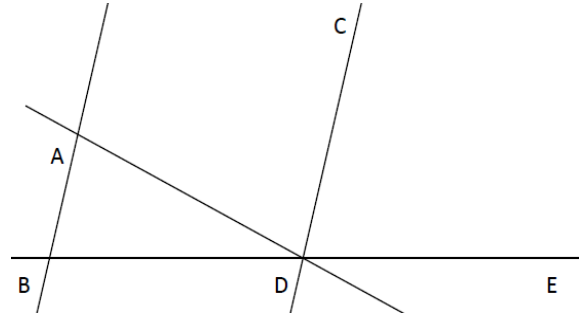
Statements	Reasons
1. $\overline{CD}$ is the altitude to $\overline{AB}$ $\overline{AE}$ is the altitude to $\overline{BC}$	1. Given
2. $\angle D$ and $\angle E$ are right angles	2. Definition of _____
3. Triangles $ADC$ and $CEA$ are right triangles	3. Definition of _____ - _____
4. $\overline{CD} \cong \overline{AE}$	4. Given
5. $\overline{AC} \cong \overline{AC}$	5. _____ property of congruence
6. $\triangle \underline{\hspace{2cm}} \cong \triangle \underline{\hspace{2cm}}$	6. Hypotenuse-Leg postulate
7. $\angle BAC \cong \angle BCA$	7. CPCTC
8. $\triangle \underline{\hspace{2cm}}$ is isosceles	8. _____

## Proof Case # 2

Given:  $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$

$\overleftrightarrow{DC}$  bisects  $\angle ADE$

Prove:  $\triangle ABD$  is isosceles



Statements

1.  $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$   
 $\overleftrightarrow{DC}$  bisects  $\angle ADE$
2.  $\angle ADC \cong \angle CDE$
3.  $\angle CDE \cong \angle ABD$
4.  $\angle BAD \cong \angle ADC$
5. \_\_\_\_\_
6.  $\triangle ABD$  is isosceles

Reasons

1. Given
2. Definition of angle bisector
3. \_\_\_\_\_
4. \_\_\_\_\_
5. Transitive property of congruence
6. \_\_\_\_\_

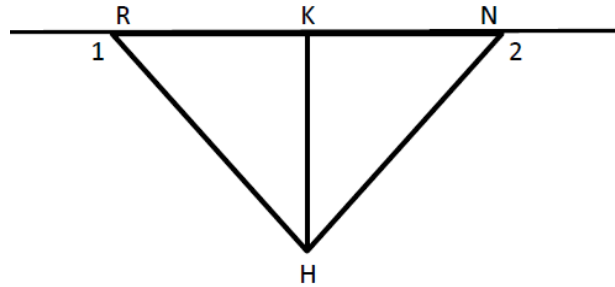
### Proof Case #3

Given:  $\angle 1 \cong \angle 2$

$\overline{HK}$  bisects  $\angle RHN$

$\overline{HR} \cong \overline{HN}$

Prove:  $\overline{HK} \perp \overline{RN}$



Statements	Reasons
1. $\angle 1 \cong \angle 2$ $\overline{HK}$ bisects $\angle RHN$ $\overline{HR} \cong \overline{HN}$	1. Given
2. $\triangle HNR$ is isosceles	2. _____
3. $\angle RHK \cong \angle KHN$	3. _____
4. $\angle HRK \cong \angle HNK$	4. _____ theorem
5. $\angle HKR + \angle HKN = 180$	5. Definition of _____
6. $\angle HKR \cong \angle$ _____	6. Third angle postulate
7. $2(m\angle HKR) = 180$ $m\angle HKR = 90$ $m\angle HKN = 90$	7. _____
8. $\overline{HK} \perp \overline{RN}$	8. Definition of _____

Triangle Proof Test (Modified)

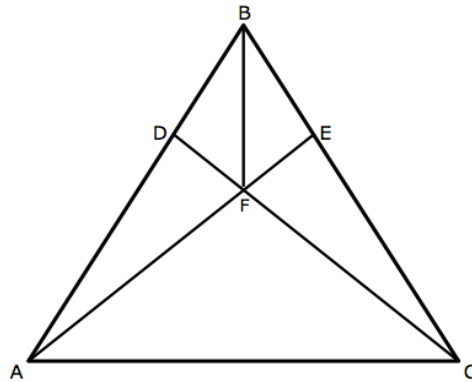
Case Proof #4

Given:  $\angle FAC \cong \angle FCA$

$\overline{FD} \perp \overline{AB}$

$\overline{FE} \perp \overline{BC}$

Prove:  $\overline{BF}$  bisects  $\angle DBE$



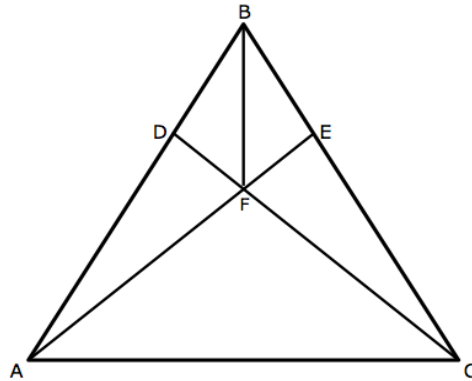
Statements	Reasons
1. $\angle FAC \cong \angle FCA$ $\overline{FD} \perp \overline{AB}$ $\overline{FE} \perp \overline{BC}$	1. Given
2. $rt\angle ADF \cong rt\angle FEC$	2. Definition of Perpendicular Lines
3. $\angle DFA + \angle AFC = 180$ $\angle EFC + \angle AFC = 180$	3. Linear Pairs
4. _____	4. Congruent Supplements
5. $\overline{AF} \cong \overline{CF}$	5. Converse of Isosceles Triangle
6. $\triangle ADF \cong \triangle CEF$	6. _____
7. $rt\angle BDF \cong rt\angle BEF$	7. Definition of _____
8. $\overline{DF} \cong \overline{FE}$	8. CPCTC
9. _____	9. Reflexive Property of Equality
10. $\triangle BDF \cong \triangle BEF$	10. _____ Theorem
11. $\angle DBF \cong \angle EBF$	11. _____
12. $\overline{BF}$ bisects $\angle DBE$	12. Definition of _____

Triangle Proof Test (Modified)

Case Proof #5

Given:  $\overline{BD} \cong \overline{BE}$   
 $\overline{FD} \cong \overline{FE}$

Prove:  $\triangle AFC$  is isosceles



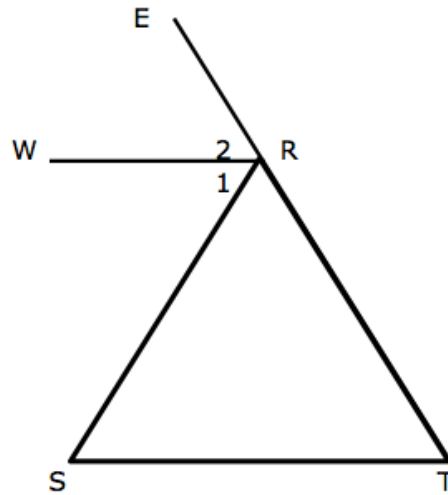
Statements	Reasons
1. $\overline{BD} \cong \overline{BE}$ $\overline{FD} \cong \overline{FE}$	1. Given
2. _____	2. Reflexive Property of Congruence
3. $\triangle BDF \cong \triangle BEF$	3. _____
4. $m\angle AFC + m\angle AFD = 180$ $m\angle AFC + m\angle CFE = 180$	4. Linear Pairs
5. $\angle AFD \cong \angle CFE$	5. Congruent supplements
6. $\angle BDF \cong \angle BEF$	6. CPCTC
7. $m\angle ADF + m\angle BDF = 180$ $m\angle CEF + m\angle BEF = 180$	7. _____
8. $m\angle CEF + m\angle BDF = 180$	8. _____
9. $\angle ADF \cong \angle CEF$	9. Congruent Supplements
10. $\overline{DF} \cong \overline{EF}$	10. CPCTC
11. _____	11. Angle-Side-Angle
12. $\overline{AF} \cong \overline{CF}$	12. CPCTC
13. $\triangle AFC$ is isosceles	13. Definition of _____

Triangle Proof Test (Modified)

Case Proof #6

Given:  $\overline{WR} \parallel \overline{ST}$   
 $\overline{WR}$  bisects  $\angle SRE$

Prove:  $\triangle SRT$  is isosceles



Statements	Reasons
1. $\overline{WR} \parallel \overline{ST}$ $\overline{WR}$ bisects $\angle SRE$	1. Given
2. $\angle 1 \cong \angle 2$	2. Definition of Angle Bisector
3. $\angle 1 \cong \angle$ _____	3. Alternate Interior Angles
4. $\angle 2 \cong \angle T$	4. Corresponding Angles
5. $\angle S \cong \angle T$	5. _____
6. $\triangle SRT$ is isosceles	6. _____



Triangle Proof Test (Modified)

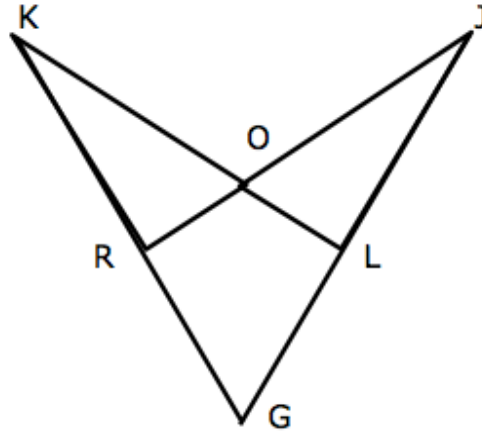
Case Proof #7

Given:  $\overline{JR} \perp \overline{KG}$

$\overline{KL} \perp \overline{JG}$

$\overline{KL} \cong \overline{JR}$

Prove:  $\triangle KLG \cong \triangle JRG$

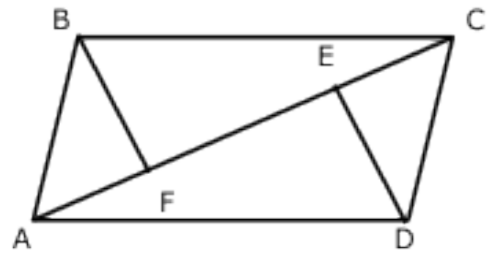


Statements	Reasons
1. $\overline{JR} \perp \overline{KG}$ $\overline{KL} \perp \overline{JG}$ $\overline{KL} \cong \overline{JR}$	1. Given
2. $\angle KLG \cong \angle JRG$	2. _____
3. $\angle G \cong \angle G$	3. _____
4. $\triangle KLG \cong \triangle JRG$	4. _____

Triangle Proof Test (Modified)

Case Proof #8

Given:  $\overline{BF} \perp \overline{AC}$   
 $\overline{DE} \perp \overline{AC}$   
 $\overline{AB} \cong \overline{DC}$   
 $\overline{AE} \cong \overline{CF}$



Prove:  $\triangle AFB \cong \triangle CED$

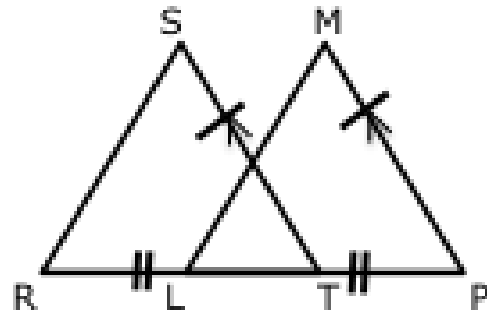
Statements	Reasons
1. $\overline{BF} \perp \overline{AC}$ $\overline{DE} \perp \overline{AC}$ $\overline{AB} \cong \overline{DC}$ $\overline{AE} \cong \overline{CF}$	1. Given
2. _____	2. Segment Addition Property
3. _____	3. Substitution Property
4. $\overline{AF} + \overline{FE} = \overline{FE} + \overline{CE}$	4. _____
5. $\overline{AF} \cong \overline{CE}$	5. Hypotenuse-Leg
6. _____	

Triangle Proof Test (Modified)

Case Proof #9

Given:  $\overline{ST} \cong \overline{MP}$   
 $\overline{ST} \parallel \overline{MP}$   
 $\overline{RT} \cong \overline{LP}$

Prove:  $\overline{RS} \parallel \overline{LM}$



Statements	Reasons
1. $\overline{ST} \cong \overline{MP}$ $\overline{ST} \parallel \overline{MP}$ $\overline{RT} \cong \overline{LP}$	1. Given
2. _____	2. Corresponding Angles
3. $\triangle RST \cong \triangle LMP$	3. _____
4. _____	4. CPCTC
5. $\overline{RS} \parallel \overline{LM}$	5. _____

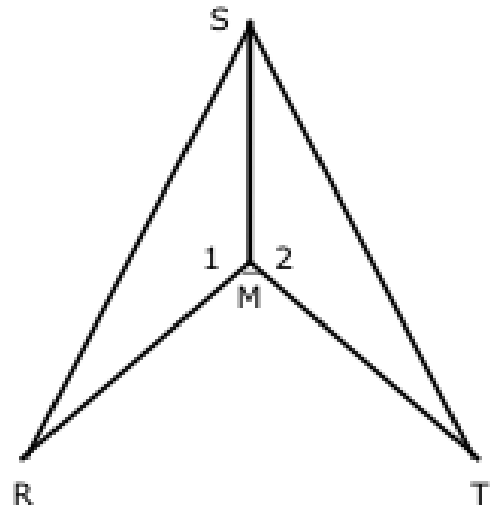
Triangle Proof Test (Modified)

Case Proof #10

Given:  $\angle 1 \cong \angle 2$

$$\overline{RM} \cong \overline{TM}$$

Prove:  $\overline{SM}$  bisects  $\angle RST$



Statements	Reasons
1. $\frac{\angle 1 \cong \angle 2}{\overline{RM} \cong \overline{TM}}$	1. Given
2. _____	2. Reflexive Property
3. $\triangle RSM \cong \triangle TSM$	3. _____
4. _____	4. CPCTC
5. $\overline{SM}$ bisects $\angle RST$	5. _____