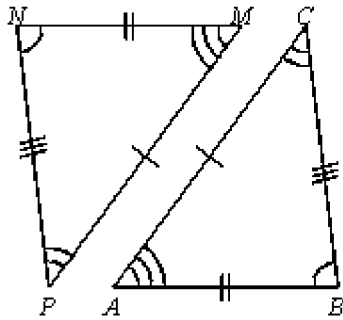


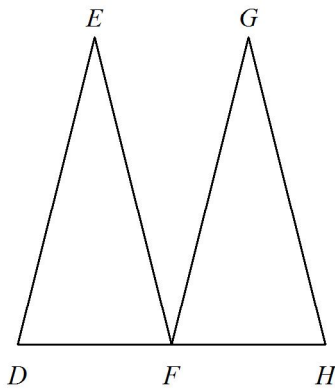
Chapter 4 Test

- _____ 1. If $BCDE$ is congruent to $OPQR$, then \overline{DE} is congruent to _____.
 A. \overline{PQ} B. \overline{OR} C. \overline{OP} D. \overline{QR}
- _____ 2. If $\triangle MNO \cong \triangle PQR$, which of the following can you NOT conclude as being true?
 A. $\overline{MN} \cong \overline{PR}$ B. $\angle M \cong \angle P$ C. $\overline{NO} \cong \overline{QR}$ D. $\angle N \cong \angle Q$
- _____ 3. $\angle ABC \cong$ _____



- A. $\angle PMN$ B. $\angle NPM$ C. $\angle NMP$ D. $\angle MNP$

- _____ 4. Which congruence statement does NOT necessarily describe the triangles shown if $\triangle DEF \cong \triangle FGH$?

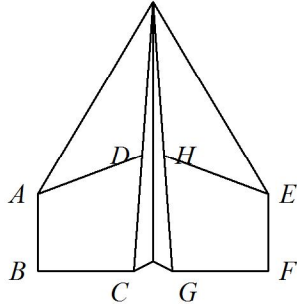


- A. $\triangle EDF \cong \triangle GFH$ C. $\triangle EFD \cong \triangle GHF$
 B. $\triangle FDE \cong \triangle FGH$ D. $\triangle FED \cong \triangle HGF$

- _____ 5. Given $\triangle QRS \cong \triangle TUV$, $QS = 3v + 2$, and $TV = 7v - 6$, find the length of QS and TV .
 A. 2 B. 9 C. 8 D. 20

- _____ 6. Given $\triangle ABC \cong \triangle PQR$, $m\angle B = 3v + 4$, and $m\angle Q = 8v - 6$, find $m\angle B$ and $m\angle Q$.
 A. 22 B. 11 C. 10 D. 25

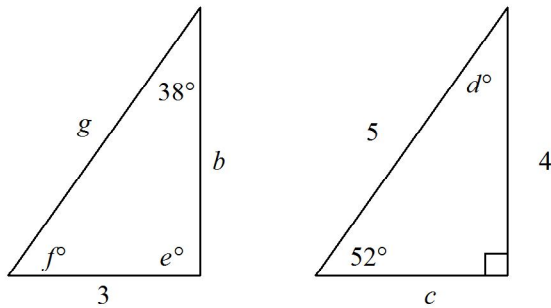
- _____ 7. In the paper airplane, $ABCD \cong EFGH$, $m\angle B = m\angle BCD = 90$, and $m\angle BAD = 131$. Find $m\angle GHE$.



Drawing not to scale

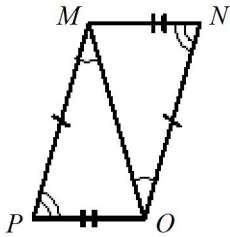
- A. 131 B. 49 C. 90 D. 59

- _____ 8. The two triangles are congruent as suggested by their appearance. Find the value of c . The diagrams are not to scale.



- A. 4 B. 5 C. 3 D. 38

9. Use the information given in the diagram. Tell why $\overline{MN} \cong \overline{PO}$ and $\angle NOM \cong \angle PMO$.

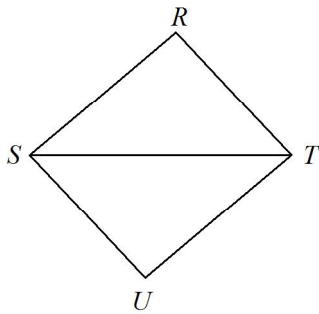


- A. Transitive Property, Reflexive Property
- B. Given, Given
- C. Reflexive Property, Transitive Property
- D. Given, Reflexive Property

10. Justify the last two steps of the proof.

Given: $\overline{RS} \cong \overline{UT}$ and $\overline{RT} \cong \overline{US}$

Prove: $\triangle RST \cong \triangle UTS$

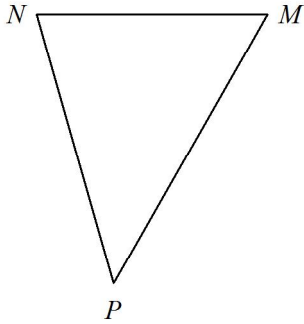


Proof:

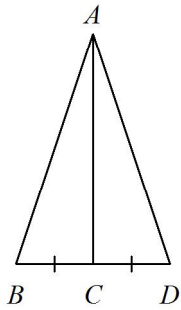
- | | |
|--|-------------|
| 1. $\overline{RS} \cong \overline{UT}$ | 1. Given |
| 2. $\overline{RT} \cong \overline{US}$ | 2. Given |
| 3. $\overline{ST} \cong \overline{TS}$ | 3. <u>?</u> |
| 4. $\triangle RST \cong \triangle UTS$ | 4. <u>?</u> |

- A. Symmetric Property of \cong ; SSS
- B. Reflexive Property of \cong ; SAS
- C. Reflexive Property of \cong ; SSS
- D. Symmetric Property of \cong ; SAS

- ____ 11. Name the angle included by the sides \overline{PN} and \overline{NM} .

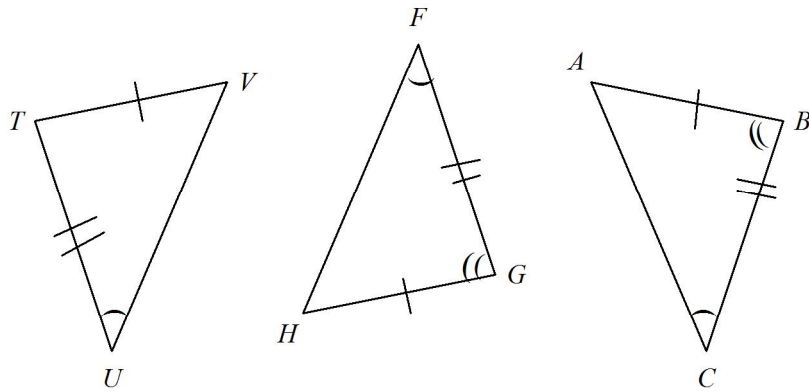


- A. $\angle N$ B. $\angle P$ C. $\angle M$ D. none of these
- ____ 12. What other information do you need in order to prove the triangles congruent using the SAS Congruence Postulate?



- A. $\angle BAC \cong \angle DAC$ C. $\angle CBA \cong \angle CDA$
B. $\overline{AC} \perp \overline{BD}$ D. $\overline{AC} \cong \overline{BD}$

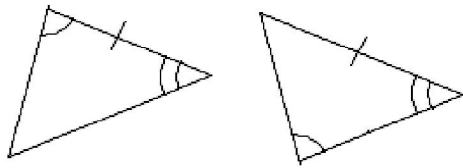
___ 13. Which triangles are congruent by ASA?



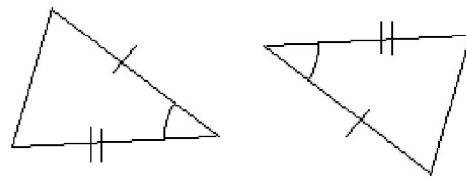
- A. $\triangle ABC$ and $\triangle GFH$
- B. $\triangle HGF$ and $\triangle ABC$
- C. $\triangle HGF$ and $\triangle VTU$
- D. none

___ 14. Which pair of triangles is congruent by ASA?

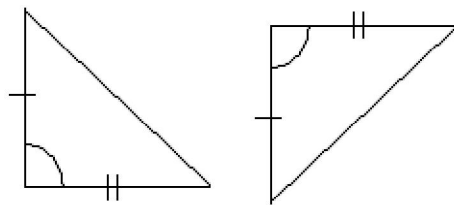
A.



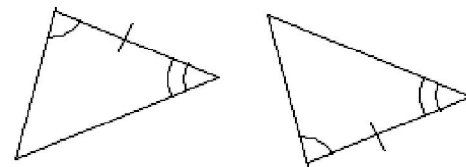
C.



B.

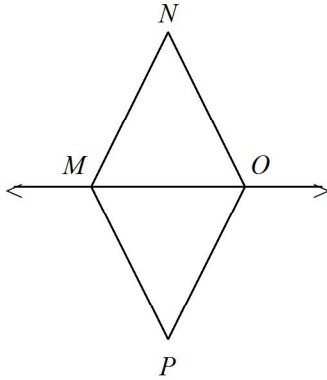


D.



15. What is the missing reason in the two-column proof?

Given: \overrightarrow{MO} bisects $\angle PMN$ and \overrightarrow{OM} bisects $\angle PON$
Prove: $\triangle PMO \cong \triangle NMO$



Statements

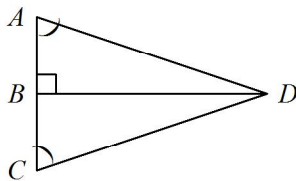
1. \overrightarrow{MO} bisects $\angle PMN$
2. $\triangle PMO \cong \triangle NMO$
3. $\overline{MO} \cong \overline{MO}$
4. \overrightarrow{OM} bisects $\angle PON$
5. $\angle POM \cong \angle NOM$
6. $\triangle PMO \cong \triangle NMO$

Reasons

1. Given
2. Definition of angle bisector
3. Reflexive property
4. Given
5. Definition of angle bisector
6. ?

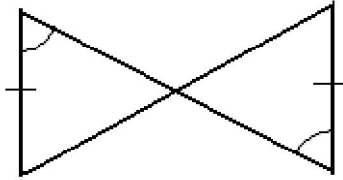
- | | |
|------------------|------------------|
| A. ASA Postulate | C. AAS Theorem |
| B. SSS Postulate | D. SAS Postulate |

16. Name the theorem or postulate that lets you immediately conclude $\triangle ABD \cong \triangle CBD$.



- | | | | |
|--------|--------|--------|------------------|
| A. AAS | B. SAS | C. ASA | D. none of these |
|--------|--------|--------|------------------|

___ 17. Can you use the SAS Postulate, the AAS Theorem, or both to prove the triangles congruent?



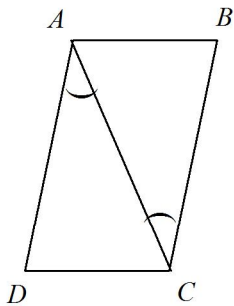
A. either SAS or AAS

C. AAS only

B. SAS only

D. neither

___ 18. What else must you know to prove the triangles congruent by ASA? By SAS?



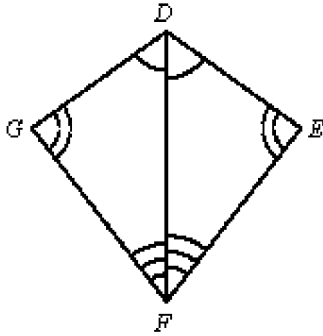
A. $\angle ACD \cong \angle CAB$; $\overline{AB} \cong \overline{CD}$

C. $\angle ADC \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$

B. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$

D. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{AC}$

____ 19. From the information in the diagram, can you prove $\triangle FDG \cong \triangle FDE$? Explain.

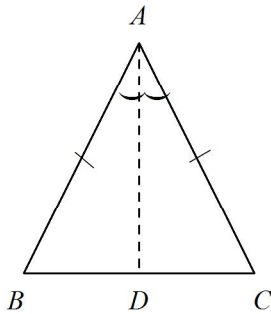


- A. yes, by ASA
- B. yes, by AAA
- C. yes, by SAS
- D. no

____ 20. Supply the reasons missing from the proof shown below.

Given: $\overline{AB} \cong \overline{AC}$, $\angle BAD \cong \angle CAD$

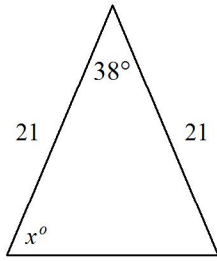
Prove: \overline{AD} bisects \overline{BC}



Statements	Reasons
1. $\overline{AB} \cong \overline{AC}$	1. Given
2. $\angle BAD \cong \angle CAD$	2. Given
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive Property
4. $\triangle BAD \cong \triangle CAD$	4. _____ ?
5. $\overline{BD} \cong \overline{CD}$	5. _____ ?
6. \overline{AD} bisects \overline{BC}	6. Definition of segment bisector

- A. ASA; Corresp. parts of $\cong \Delta$ are \cong .
- B. SAS; Reflexive Property
- C. SSS; Reflexive Property
- D. SAS; Corresp. parts of $\cong \Delta$ are \cong .

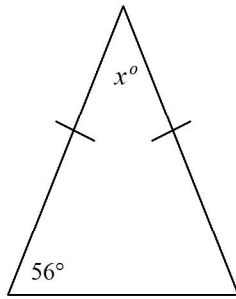
____ 21. What is the value of x ?



Drawing not to scale

- A. 71° B. 142° C. 152° D. 76°

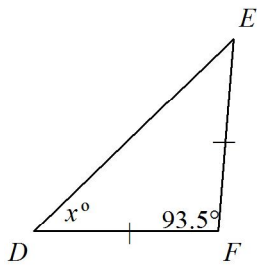
____ 22. What is the value of x ?



Drawing not to scale

- A. 68° B. 62° C. 112° D. 124°

____ 23. What is the value of x ?



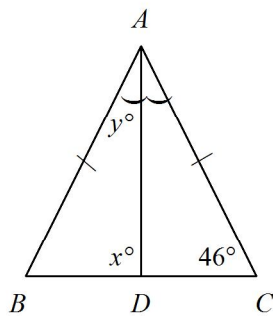
Drawing not to scale

- A. 86.5° B. 43.25° C. 133.25° D. 46.75°

- _____ 24. Two sides of an equilateral triangle have lengths $x + 2$ and $-2x + 20$. Which could be the length of the third side: $14 - x$ or $2x + 4$?
- A. $2x + 4$ only
 B. both $14 - x$ and $2x + 4$
 C. $14 - x$ only
 D. neither $14 - x$ nor $2x + 4$

- _____ 25. The legs of an isosceles triangle have lengths $x + 1$ and $-x + 7$. The base has length $3x - 3$. What is the length of the base?
- A. 4
 B. 6
 C. 3
 D. cannot be determined

- _____ 26. Find the values of x and y .



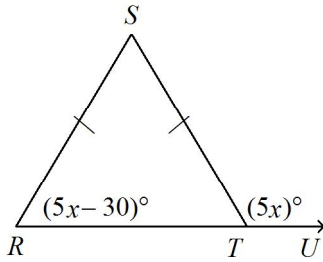
Drawing not to scale

- A. $x = 44, y = 46$
 B. $x = 46, y = 44$
 C. $x = 90, y = 44$
 D. $x = 90, y = 46$
- _____ 27. In an A-frame house, the two congruent sides extend from the ground to form a 34° angle at the peak. What angle does each side form with the ground?
- A. 156
 B. 146
 C. 73
 D. 78

Name: _____

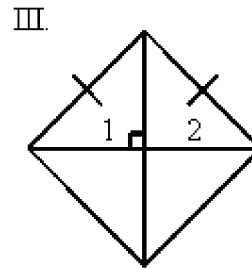
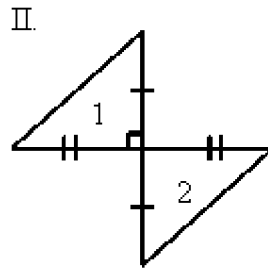
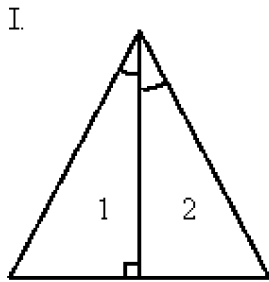
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___ 28. Find the value of x . The diagram is not to scale.



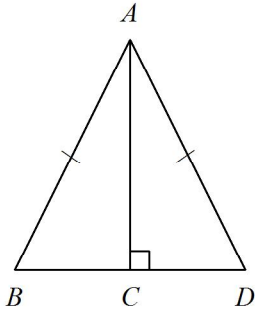
- A. $x = 60$ B. $x = 21$ C. $x = 15$ D. none of these

___ 29. For which situation could you immediately prove $\Delta 1 \cong \Delta 2$ using the HL Theorem?

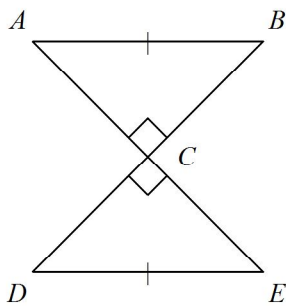


- A. I only B. II only C. III only D. II and III

- _____ 30. Is there enough information to conclude that the two triangles are congruent? If so, what is a correct congruence statement?

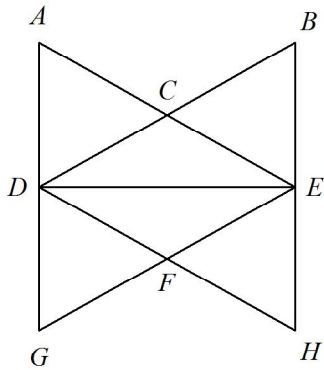


- A. Yes; $\triangle CAB \cong \triangle DAC$.
- B. Yes; $\triangle ACB \cong \triangle ACD$.
- C. Yes; $\triangle ABC \cong \triangle ACD$.
- D. No, the triangles cannot be proven congruent.
- _____ 31. \overline{RQ} is a perpendicular bisector to \overline{PS} at Q between P and S . $\angle SPR \cong \angle PSR$. By which of the five congruence statements, HL, AAS, ASA, SAS, and SSS, can you immediately conclude that $\triangle PQR \cong \triangle SQR$?
- A. HL, AAS, ASA, SAS, and SSS C. HL, AAS, and ASA
- B. HL and AAS D. HL and ASA
- _____ 32. What additional information will allow you to prove the triangles congruent by the HL Theorem?



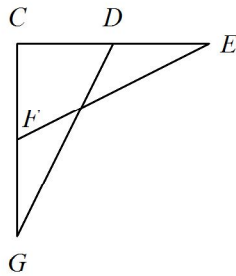
- A. $\angle A \cong \angle E$ C. $\overline{AC} \cong \overline{DC}$
- B. $m\angle BCE = 90$ D. $\overline{AC} \cong \overline{BD}$

___ 33. What common side do $\triangle GDE$ and $\triangle HED$ share?



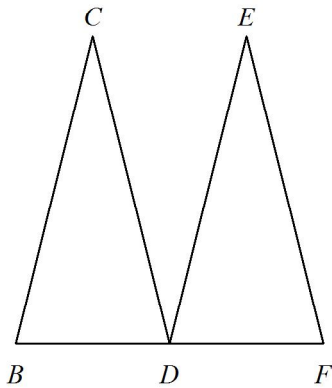
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|--------------------|--------------------|
| A. \overline{ED} | C. \overline{HD} |
| B. \overline{GD} | D. \overline{GD} |

___ 34. What common angle do $\triangle CDG$ and $\triangle FCE$ share?

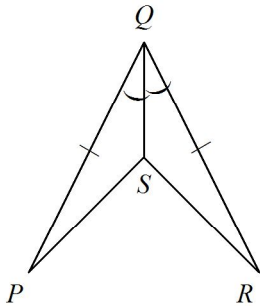


- | | |
|---------------|---------------|
| A. $\angle C$ | C. $\angle E$ |
| B. $\angle F$ | D. $\angle D$ |

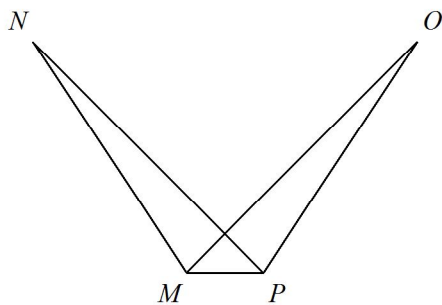
35. If $\triangle ABCD \cong \triangle FED$, what are the congruent corresponding parts?



36. Is there enough information to prove the two triangles congruent? If yes, write the congruence statement and name the postulate you would use. If no, write *not possible* and tell what other information you would need.



37. Name a pair of triangles in the figure and state whether they are congruent by SSS, SAS, ASA, AAS, or HL.
Given: $\overline{NP} \cong \overline{OM}$, $\overline{MN} \cong \overline{PO}$



**Chapter 4 Test
Answer Section**

1. D
2. A
3. D
4. B
5. C
6. C
7. B
8. C
9. B
10. C
11. A
12. B
13. B
14. D
15. A
16. A
17. C
18. B
19. A
20. D
21. A
22. A
23. B
24. C
25. B
26. C
27. C
28. B
29. C
30. B
31. B
32. C
33. A
34. A
35. Sides: $\overline{BC} \cong \overline{FE}$, $\overline{CD} \cong \overline{ED}$, $\overline{DB} \cong \overline{DF}$
Angles: $\angle B \cong \angle F$, $\angle C \cong \angle E$, $\angle BDC \cong \angle FDE$
36. Yes; $\triangle PQS \cong \triangle RQS$ by SAS.
37. $\triangle MNP \cong \triangle POM$ by SSS