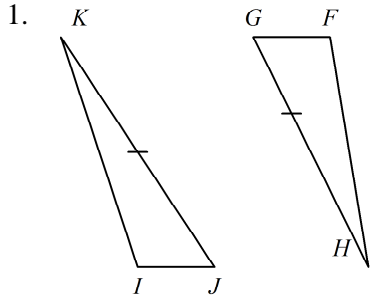## Geometry Unit 5 Practice Test
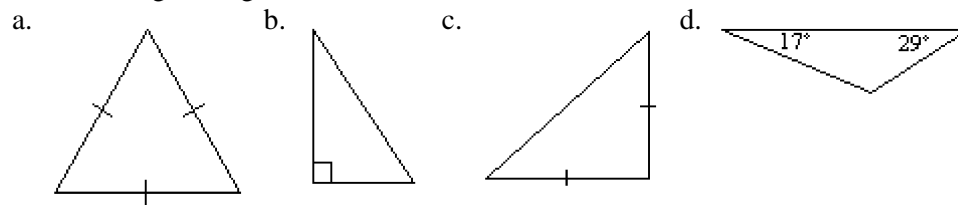
Multiple Choice
Identify the choice that best completes the statement or answers the question.

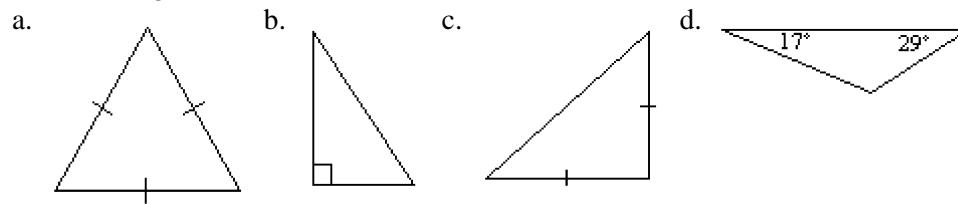*Identify the congruent triangles in the figure.*

1.

   a. $\Delta FGH \cong \Delta KJI$ b. $\Delta HFG \cong \Delta KIJ$ c. $\Delta GFH \cong \Delta KIJ$ d. $\Delta GHF \cong \Delta KJI$

2. Which triangle is right scalene?
   a.   b.   c.   d.

3. Which triangle is obtuse scalene?
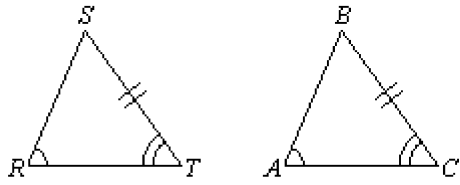   a.   b.   c.   d.

Choose the postulate or theorem that can be used to prove the pair of triangles congruent. If it is not possible to prove that they are congruent, choose not possible.
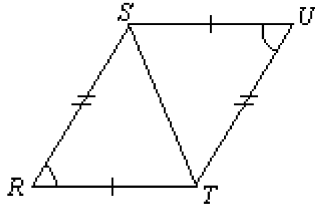
4.
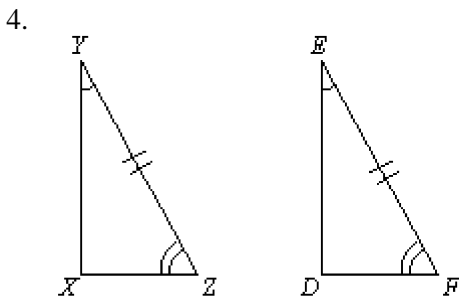
a. ASA   b. AAS   c. SAS   d. not possible

1

5.

   a. ASA   b. SAS   c. AAS   d. not possible

6. Determine whether the pair of triangles is congruent by SSS, SAS, ASA, or AAS. If it is not possible to prove that they are congruent, write *not possible*.
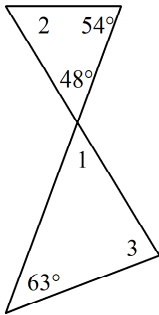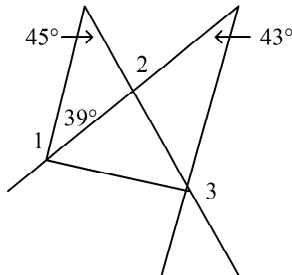

   a. AAS   b. SAS   c. ASA   d. not possible
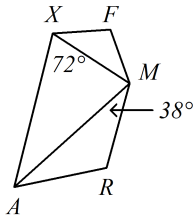

Short Answer

   Find each measure.

7. $m\angle1$, $m\angle2$, $m\angle3$

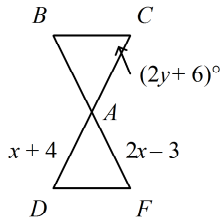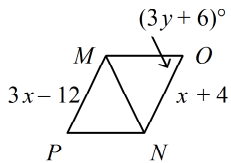8. $m\angle1$, $m\angle2$, $m\angle3$

Refer to the figure. $\triangle ARM$, $\triangle MAX$, and $\triangle XFM$ *are all isosceles triangles.*

9. What is $m\angle MAX$?

10. What is $m\angle RAX$?

11. If $m\angle FXA = 96$, what is $m\angle FMR$?

12. What is $m\angle ARM$?

13. If $m\angle FMR = 155$, what is $m\angle FMX$?

14. If $m\angle FMX = 23$ what is $m\angle FXA$?

15. Triangles *ABC* and *AFD* are vertical congruent equilateral triangles. Find x and y.

16. Triangles *MNP* and *OMN* are congruent equilateral triangles. Find x and y.

17. Triangle *RSU* is an equilateral triangle. $\overline{RT}$ bisects $\overline{US}$. Find x and y.
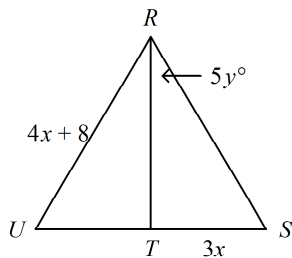
18. Triangles *ABC* and *AFD* are vertical congruent equilateral triangles. Find *x* and *y*.

B ———— C

2x | 9   6y°

A

5x − 12

D   F
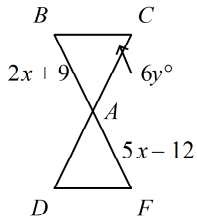
Find the value of the variable.

19.

G

x° 96°

E   F

20.

Y

4x°

90°   x°

X   Z
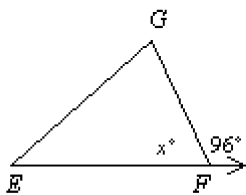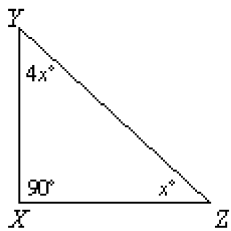
Complete the congruence statement.

21.
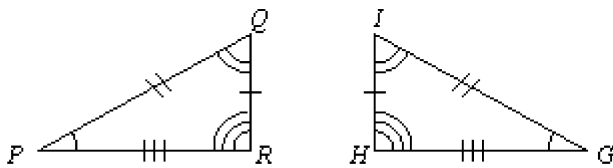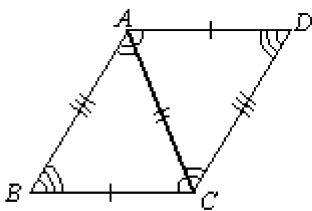
Q   I

P   R   H   G

Δ____?____ ≅ ΔGHI

22.

A   D

B   C

ΔBCA ≅ Δ____?____

Determine whether the pair of triangles is congruent. If so, write a congruence statement and explain why the triangles are congruent. If not explain why the triangles are not congruent.

23.

24.

25.
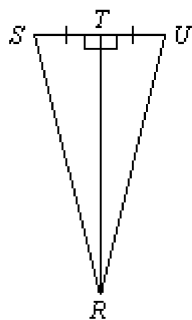
26.
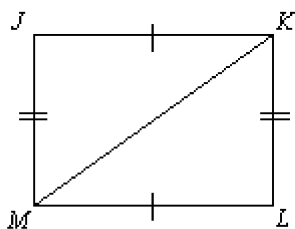
27.
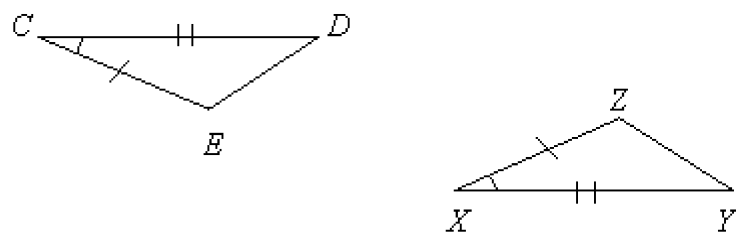
28.
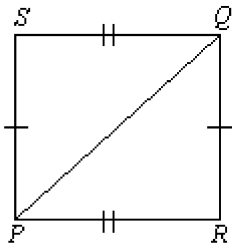
Name the additional congruent parts needed so that the triangles are congruent.

29. by ASA
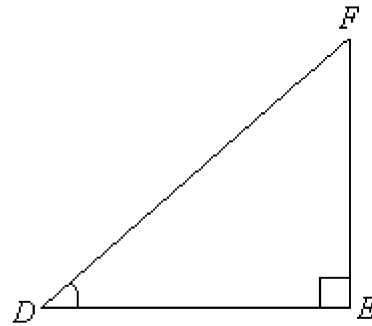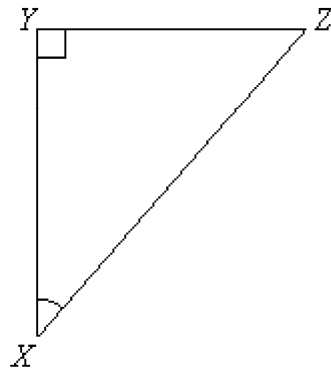
30. by ASA
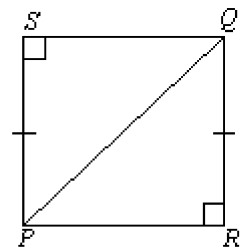
Classify the triangle by its angles and by its sides.

31.

32.

33.
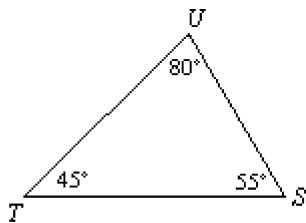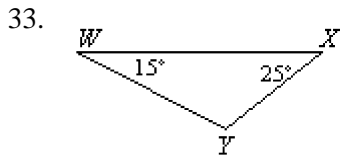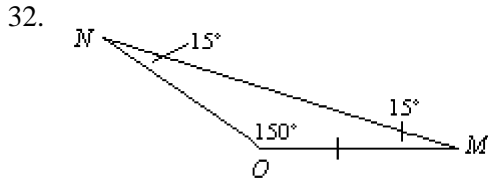
Name the congruent angles and sides. Then mark the triangles using arcs and slash marks to show the congruent angles and sides.

34. $\triangle HIG \cong \triangle ONM$
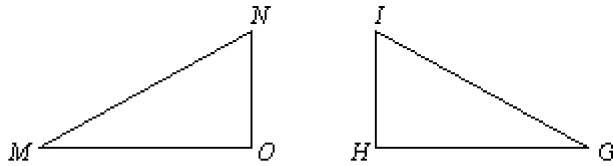
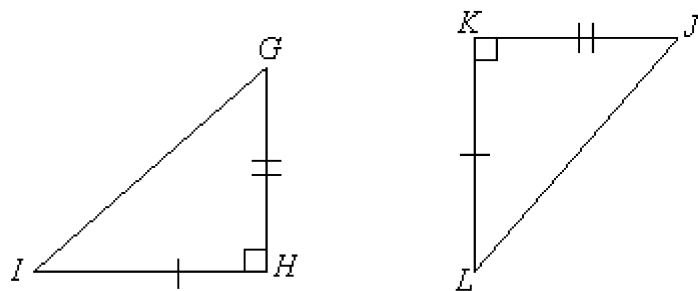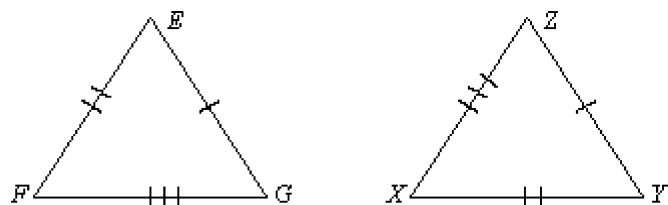*Determine whether the pair of triangles is congruent. If so, write a congruence statement and explain why the triangles are congruent. If not explain why the triangles are not congruent.*

35.

36.

7
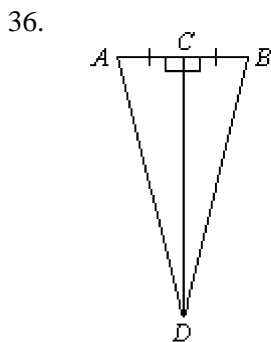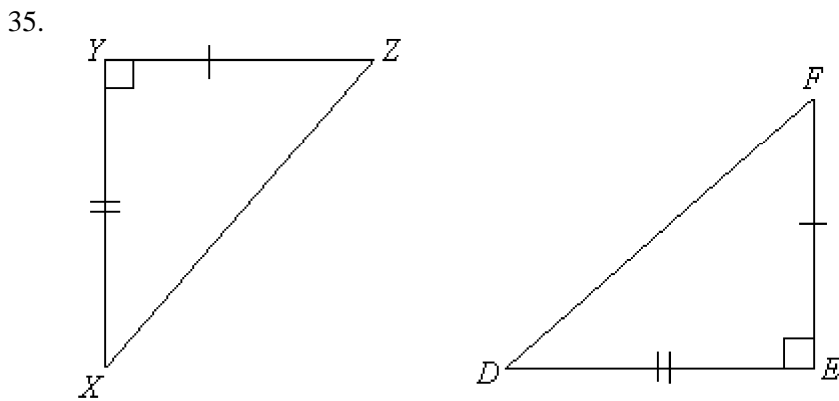
Geometry Unit 5 Practice Test
Answer Section

MULTIPLE CHOICE

1. ANS: B   DIF: Average   REF: Lesson 4-3
2. ANS: B   DIF: Basic
3. ANS: D   DIF: Basic
4. ANS: A   DIF: Average
5. ANS: C   DIF: Average
6. ANS: B   DIF: Average

SHORT ANSWER

7. ANS:
$m\angle 1 = 48$, $m\angle 2 = 78$, $m\angle 3 = 69$

DIF: Basic   REF: Lesson 4-2

8. ANS:
$m\angle 1 = 141$, $m\angle 2 = 84$, $m\angle 3 = 139$

DIF: Average   REF: Lesson 4-2

9. ANS:
36

DIF: Average   REF: Lesson 4-6

10. ANS:
74

DIF: Average   REF: Lesson 4-6

11. ANS:
134

DIF: Average   REF: Lesson 4-6

12. ANS:
104

DIF: Average   REF: Lesson 4-6

13. ANS:
45

DIF: Average   REF: Lesson 4-6

14. ANS:
95

DIF: Average   REF: Lesson 4-6

15. ANS:
    $x = 7, y = 27$

    DIF: Average   REF: Lesson 4-6
16. ANS:
    $x = 8, y = 18$

    DIF: Average   REF: Lesson 4-6
17. ANS:
    $x = 4, y = 6$

    DIF: Average   REF: Lesson 4-6
18. ANS:
    $x = 7, y = 10$

    DIF: Average   REF: Lesson 4-6
19. ANS:
    84

    DIF: Average
20. ANS:
    18

    DIF: Average
21. ANS:
    PRQ

    DIF: Average
22. ANS:
    DAC

    DIF: Average
23. ANS:
    $\triangle GHI \cong \triangle JKL;$ SAS

    DIF: Average
24. ANS:
    $\triangle FGE \cong \triangle XZY;$ SSS

    DIF: Average
25. ANS:
    $\triangle STR \cong \triangle UTR;$ SAS

    DIF: Average
26. ANS:
    $\triangle KLM \cong \triangle MJK;$ SSS

    DIF: Average

27. ANS:
    $\triangle ECD \cong \triangle ZXY$; SAS

    DIF: Average
28. ANS:
    $\triangle SPQ \cong \triangle RQP$; SSS
    If three sides of one triangle are congruent to three corresponding sides of another triangle, then the triangles are congruent by SSS.
    If two sides and the included angle of one triangle are congruent to the corresponding sides and included angle of another triangle, then the triangles are congruent by SAS.

    DIF: Average
29. ANS:
    $\overline{YX} \cong \overline{DE}$
    If two angles and the included side of one triangle are congruent to the corresponding angles and included side of another triangle, then the triangles are congruent by ASA.

    DIF: Average
30. ANS:
    $\angle SPQ \cong \angle RQP$
    If two angles and the included side of one triangle are congruent to the corresponding angles and included side of another triangle, then the triangles are congruent by ASA.

    DIF: Average
31. ANS:
    acute, scalene
    Triangles classified by angles:
    acute - all acute angles
    obtuse - one obtuse angle
    right - one right angle

    Triangles classified by sides:
    scalene - no sides congruent
    isosceles - at least two sides congruent
    equilateral - all sides congruent

    DIF: Basic

32. ANS:
obtuse, isosceles
Triangles classified by angles:
acute - all acute angles
obtuse - one obtuse angle
right - one right angle

Triangles classified by sides:
scalene - no sides congruent
isosceles - at least two sides congruent
equilateral - all sides congruent

DIF: Basic

33. ANS:
obtuse, scalene
Triangles classified by angles:
acute - all acute angles
obtuse - one obtuse angle
right - one right angle

Triangles classified by sides:
scalene - no sides congruent
isosceles - at least two sides congruent
equilateral - all sides congruent

DIF: Basic

34. ANS:
$\angle M \cong \angle G, \quad \angle N \cong \angle I, \quad \angle O \cong \angle H,$
$\overline{MN} \cong \overline{GI}, \quad \overline{NO} \cong \overline{IH}, \quad \overline{MO} \cong \overline{GH}$

Possible drawing;
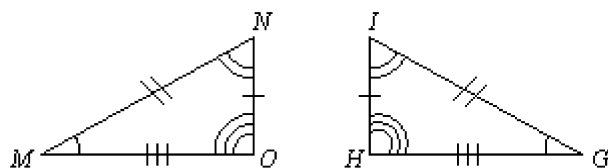
Write a congruence statement by matching the vertices of the congruent triangles. Use this information to mark the congruent parts with arcs and slashes.

DIF: Average

35. ANS:
SAS

If three sides of a triangle are congruent to three corresponding sides of another triangle, then the triangles are congruent by SSS.

If two sides and the include angle of one triangle are congruent to the corresponding sides and included angle of another triangle, then the triangles are congruent by SAS.

If two angles and the included side of one triangle are congruent to the corresponding angles and included side of another triangle, then the triangles are congruent by ASA.

If two angles and a nonincluded side of one triangle are congruent to the corresponding two angles and nonincluded side of another triangle, then the triangles are congruent by AAS.

DIF: Average

36. ANS:
SAS

If three sides of a triangle are congruent to three corresponding sides of another triangle, then the triangles are congruent by SSS.

If two sides and the include angle of one triangle are congruent to the corresponding sides and included angle of another triangle, then the triangles are congruent by SAS.

If two angles and the included side of one triangle are congruent to the corresponding angles and included side of another triangle, then the triangles are congruent by ASA.

If two angles and a nonincluded side of one triangle are congruent to the corresponding two angles and nonincluded side of another triangle, then the triangles are congruent by AAS.

DIF: Average