1.   Write in the values of any missing angles, then classify each triangle by its angles and sides.
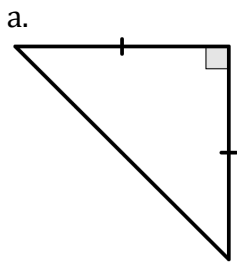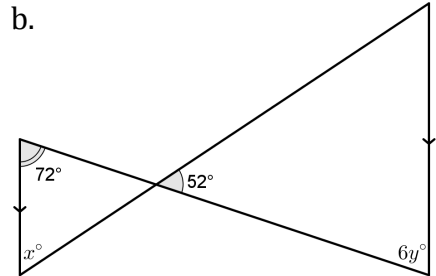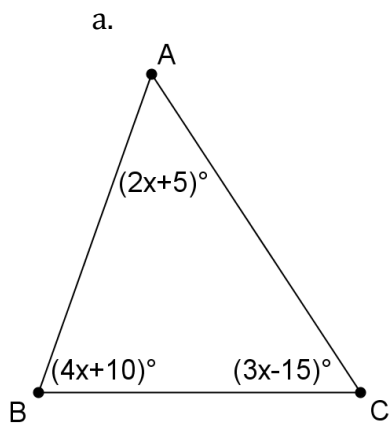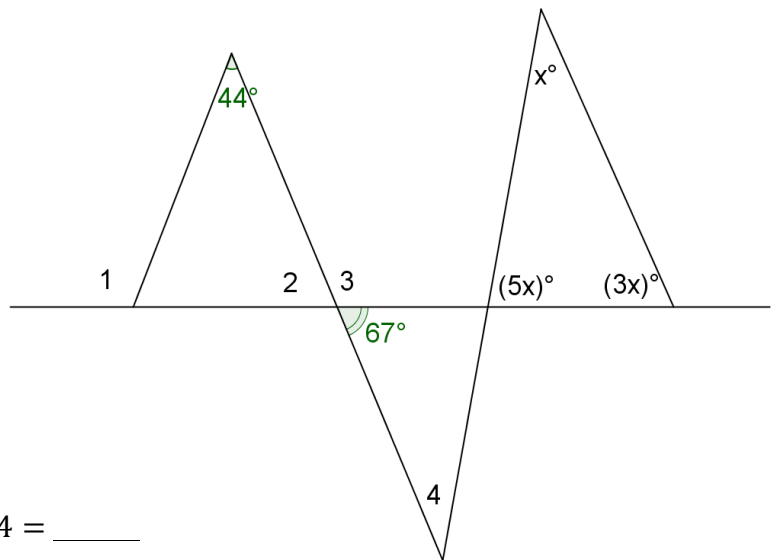a.   b.   c.

45°

43°
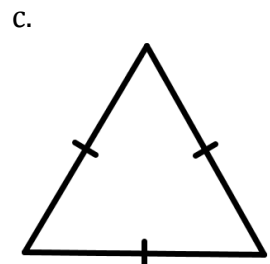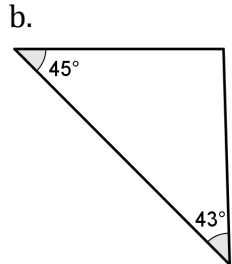
2.   Solve for the value of each variable. Write the measure of each angle in the diagram.
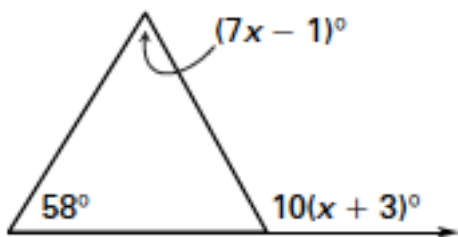a.   b.

A

(2x+5)°

72°   52°

$x°$ $6y°$

(4x+10)°   (3x-15)°

B   C

3.   Solve for each of the indicated values.

44°   x°

1   2 3   (5x)°   (3x)°

67°

4

$x =$ _____ $m∠1 =$ _____

$m∠2 =$ _____ $m∠3 =$ _____ $m∠4 =$ _____

4.   Solve for x then find the measure of the exterior angle shown.

(7x − 1)°

58°   10(x + 3)°

$x =$ _____   Exterior Angle = _____
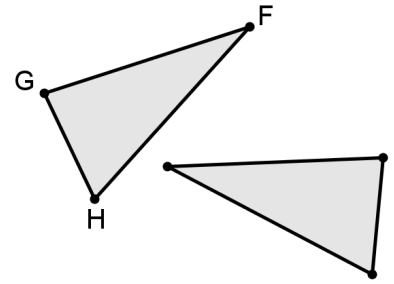
5. Label the diagram and mark all congruent corresponding parts in the diagram at the right to show $\Delta GHF \cong \Delta AEK$ and complete the statements.

$\overline{GH} \cong$ _____ $\angle G \cong$ _____ $\Delta FGH \cong$ _____
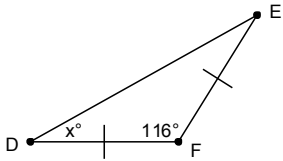
$\overline{GF} \cong$ _____ $\angle H \cong$ _____

$\overline{HF} \cong$ _____ $\angle F \cong$ _____
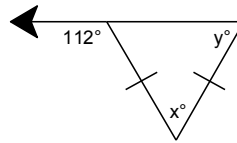
What is the reason all of these congruence statements are true?
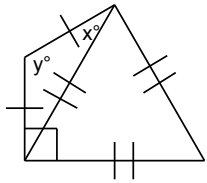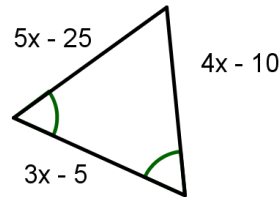
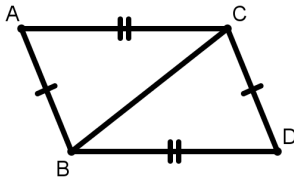6. Solve for each variable.

a.

b.

c.

d.

7. Determine if it is possible to prove the triangles congruent. If so, state the congruent triangles and give the reason why they are congruent. If it is not possible, explain why.
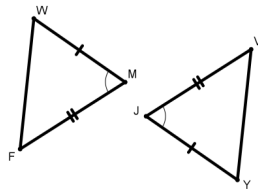
a.

Possible: Yes   No

Δ Congruence _____

Reason _____

b.

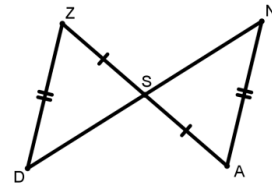Possible: Yes   No

Δ Congruence _____

Reason _____

c.

Possible: Yes   No

Δ Congruence _____

Reason _____

d.
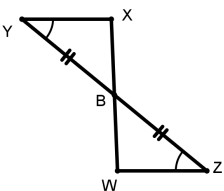
Possible: Yes   No

Δ Congruence _____

Reason _____

e.
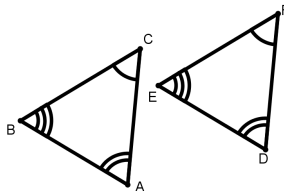
Possible: Yes   No

Δ Congruence _____

Reason _____

f.
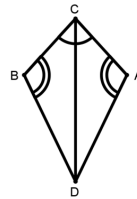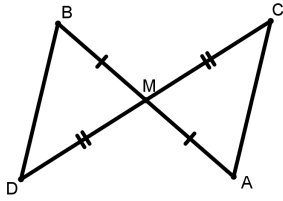
Possible: Yes   No

Δ Congruence _____
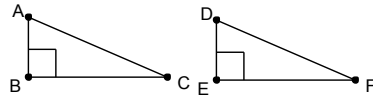
Reason _____

8.   Write a proof.
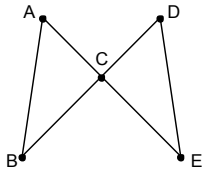a.   Given: Labeled in picture
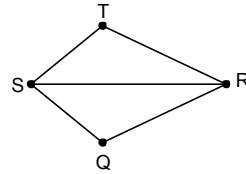   Prove: $\triangle DBM \cong \triangle CAM$

b.   Given: $\overline{AC} \cong \overline{DF}, \overline{AB} \cong \overline{DE}$
      Prove: $\triangle ABC \cong \triangle DEF$
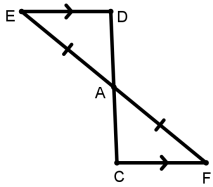

c.   Given: $\overline{BC} \cong \overline{EC}, \angle B \cong \angle E$
      Prove: $\triangle ABC \cong \triangle DEC$

d.   Given: $\overline{SR}$ bisects $\angle TSQ, \angle T \cong \angle Q$
      Prove: $\triangle RTS \cong \triangle RQS$

e.   Given: Labeled in picture
      Prove: $\overline{AD} \cong \overline{AC}$

f.   Given: $\overline{SR} \cong \overline{TV}, \overline{ST} \cong \overline{RV}$
      Prove: $\angle S \cong \angle V$