Geometry CC 1.10 Angles in a triangle

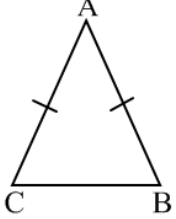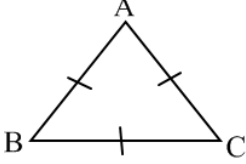| Name	Diagram	Fact/Discovery
Sum of the interior angles of a triangle is 180°		$m\angle A + m\angle B + m\angle C = 180°$
Exterior angle of a triangle equals the sum of the two remote interior angles.		$m\angle CBD = m\angle A + m\angle C$
Isosceles Triangle Base angles of an isosceles triangle are congruent. Angles opposite the congruent sides of a triangle are congruent. Sides opposite congruent angles of a triangle are congruent.		Vertex angle: $\angle A$ Base angles: $\angle C$ and $\angle B$ $\overline{AC} \cong \overline{AB}$ $\angle C \cong \angle B$
Equilateral Triangle		$\overline{AB} \cong \overline{AC} \cong \overline{BC}$ Equiangular: $m\angle A = m\angle B = m\angle C = 60°$
The acute angles of a right triangle are complementary.		$m\angle A + m\angle C = 90°$

In each figure, determine the measure of the unknown angles. State reason(s) for your calculations.
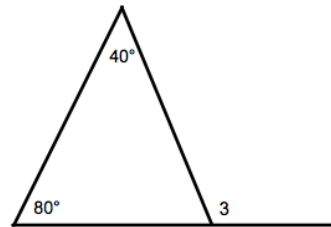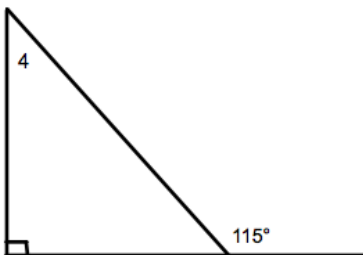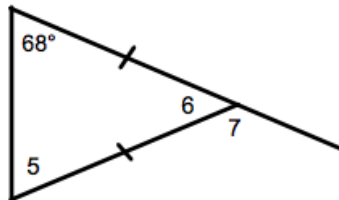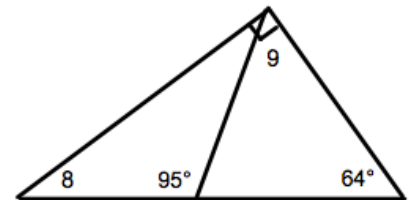
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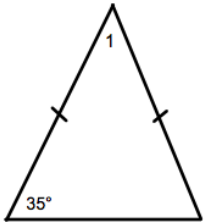
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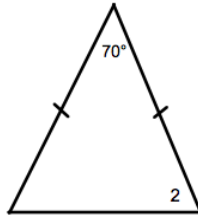
3.

4.

5.

6.

Questions 7-10.   Draw a diagram for each BEFORE attempting to solve.
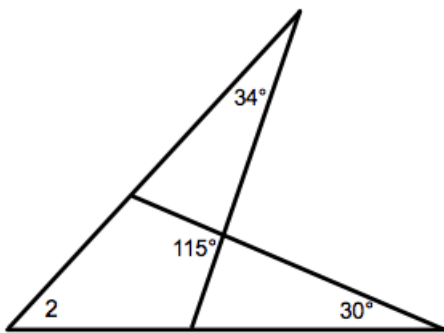
7. In $\triangle ABC$, the measure of angle B is three times as large as angle A. An exterior angle at C measures $140°$.
Find the measure of angle A

8. In $\triangle CAT$, side $\overline{CT}$ is extended through T to S. If $\angle CAT = x + 40$, $\angle ACT = 4x - 5$, and $\angle ATS = 6x + 20$,
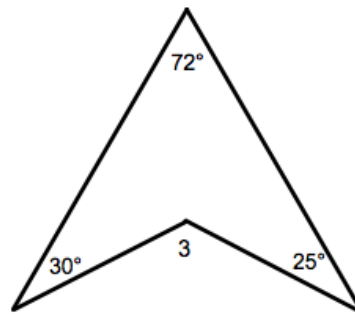find x.

9. In isosceles triangle ABC, the vertex angle C is 20 more than twice the base angles. Find the measure of all the
angles of this triangle.

10. In $\triangle DEF$, $\angle D$ is a right angle and $\angle F$ is 12 degrees less than twice the measure of $\angle E$. Find $m\angle F$

11. Find the measure of angle 2.   12. Find the measure of angle 3.   13. Find x.

(hint: draw an auxiliary line)