

Geometry CC - Unit 1

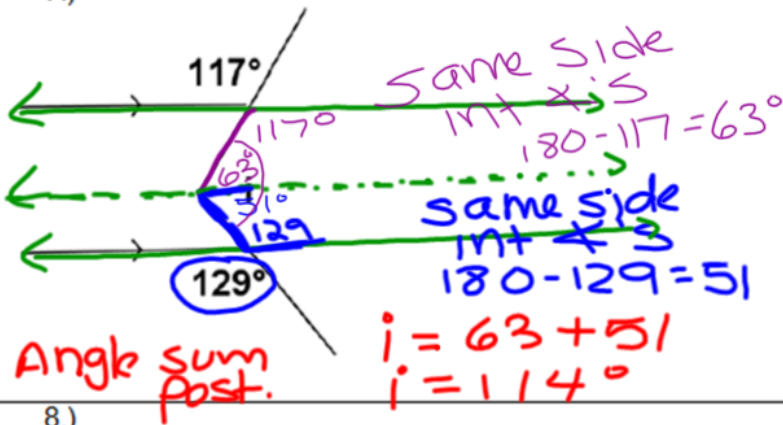
Lesson 4: Unknown Angles - Angles in a Triangle

M1 L8

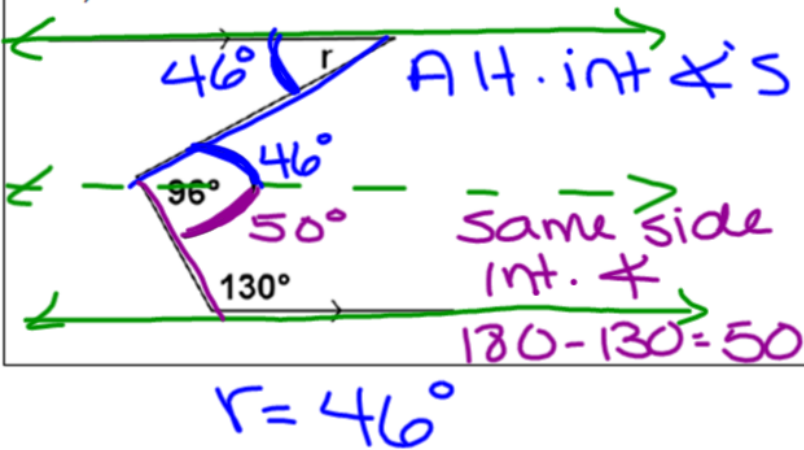
Homework: 1.4 6-9

HW Answers 1.3

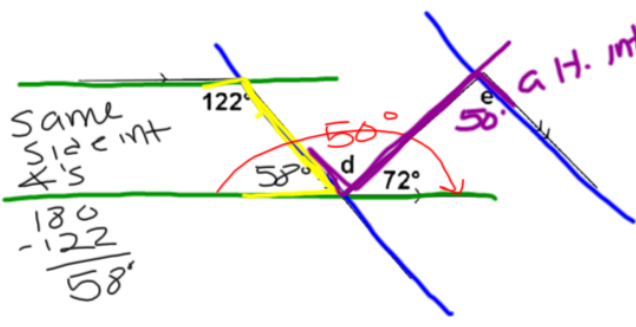
7.)



8.)



1.) Solve for the missing labeled variables.



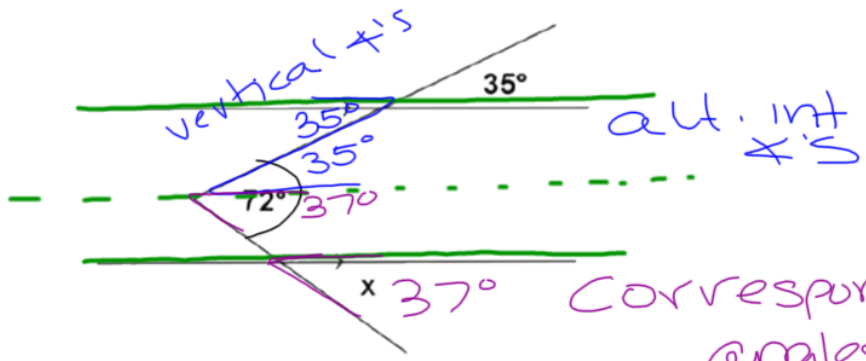
Consec. adj \angle 's
on a line
 $58 + d + 72 = 180$
 $d = 50^\circ$

Same size int \angle 's
 $\frac{180}{-122}$
 58°

$m\angle d = \underline{50^\circ}$

$m\angle e = \underline{50^\circ}$

2.) Solve for x. (Hint: Draw an auxiliary line!)

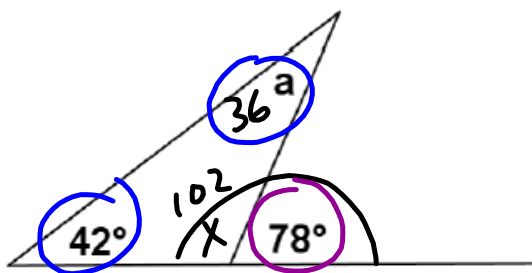


Corresponding angles

$m\angle x = \underline{37^\circ}$

In each figure, determine the measures of the unknown (labeled) angles.

1.)



$$m\angle a = 36^\circ$$

Exterior angle of a triangle equals the sum of the two interior opposite angles

non adjacent
remote interior

$$\begin{array}{r} x + 78 = 180 \\ - 78 \quad - 78 \\ \hline x = 102 \end{array}$$

$$\begin{array}{r} 42 \\ + 102 \\ \hline 144 \end{array}$$

$$\begin{array}{r} 180 \\ - 144 \\ \hline 36 \end{array}$$

Δ 's classified by sides

equilateral Δ = all 3 sides are \cong

isosceles Δ = 2 sides \cong

scalene Δ = no sides \cong

classified by \angle 's

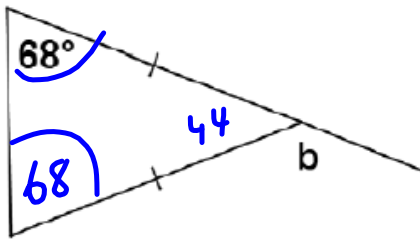
right Δ - a Δ with a right \angle

acute Δ - each \angle is less than 90°

obtuse Δ - one \angle is greater than 90°

equiangular - all \angle 's \cong , each \angle measures 60°

2.)



$$m\angle b = 136^\circ$$

The base angles of an isosceles triangle are equal in measure;

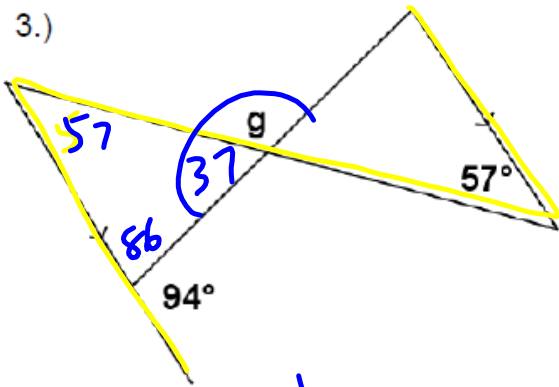
The sum of the angle measures in a triangle is 180° ;

Linear pairs form supplementary angles

$$\begin{array}{r} 1 \\ 68 \\ + 68 \\ \hline 136 \end{array} \quad \begin{array}{r} 180 \\ - 136 \\ \hline 44 \end{array} \quad \begin{array}{r} 180 \\ - 44 \\ \hline 136 \end{array}$$

If 2 sides of a \triangle are \cong , then the \angle s opposite those sides are \cong .

3.)



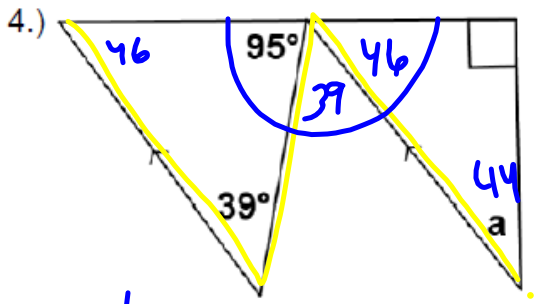
$$m\angle g = 143^\circ$$

If parallel lines are cut by a transversal, then alternate interior angles are equal in measure;

Linear pairs form supplementary angles;

The sum of the angle measures in a triangle is 180°

$$\begin{array}{r} 180 \\ - 94 \\ \hline 86 \end{array} \quad \begin{array}{r} 1 \\ 57 \\ + 86 \\ \hline 143 \end{array} \quad \begin{array}{r} 180 \\ - 143 \\ \hline 37 \end{array} \quad \begin{array}{r} 180 \\ - 37 \\ \hline 143 \end{array}$$



$$m\angle a = 44^\circ$$

If parallel lines are cut by a transversal, then alternate interior angles are equal in measure;

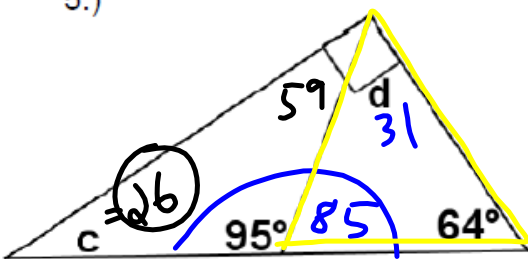
Linear pairs form supplementary angles;

Sum of the angle measures in a triangle equals 180°

$$\begin{array}{r}
 1 \\
 95 \\
 \underline{39} \\
 134
 \end{array}
 \quad
 \begin{array}{r}
 180 \\
 -134 \\
 \underline{\quad} \\
 46
 \end{array}
 \quad
 \begin{array}{r}
 40 \\
 + \underline{46} \\
 136
 \end{array}
 \quad
 \begin{array}{r}
 180 \\
 -136 \\
 \underline{\quad} \\
 44
 \end{array}$$

Practice: In each figure, determine the measures of the unknown (labeled) angles.

5.)



$$m\angle c = 26^\circ$$

The sum of the angle measures in a triangle is 180°

$$m\angle d = 31^\circ$$

Linear pairs form supplementary angles;

The sum of the angle measures in a triangle is 180°

$$\begin{array}{r} 180 \\ - 95 \\ \hline 85 \end{array}$$

$$\begin{array}{r} 85 \\ + 64 \\ \hline 149 \end{array}$$

$$\begin{array}{r} 180 \\ - 149 \\ \hline 31 \end{array}$$

$$\begin{array}{r} 90 \\ - 31 \\ \hline 59 \end{array}$$

$$\begin{array}{r} 1 \\ 59 \\ + 95 \\ \hline 154 \end{array}$$

$$\begin{array}{r} 180 \\ - 154 \\ \hline 26 \end{array}$$

HW 6-9