

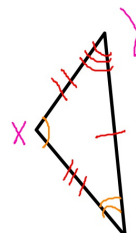
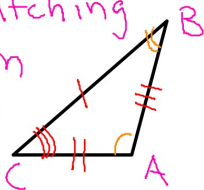
congruent figures



Figures that have the exact same size and shape.

corresponding parts

The matching Parts on different figures



$$\overline{CB} \cong \overline{YZ}$$

$$\overline{CA} \cong \overline{ZX}$$

$$\overline{AB} \cong \overline{XZ}$$

$$\angle A \cong \angle X$$

$$\angle B \cong \angle Z$$

Handwritten congruence symbol with an arrow pointing to it and the text "symbols congruent".

$40 + 90 + a = 180$   
 $130 + a = 180$

$12x + 4y = 40$   
 $17x - y = 50$

$$\begin{array}{r} 17x - y = 50 \\ +y \quad +y \\ \hline 17x = 50 + y \\ -50 - 50 \\ \hline 17x - 50 = y \end{array}$$

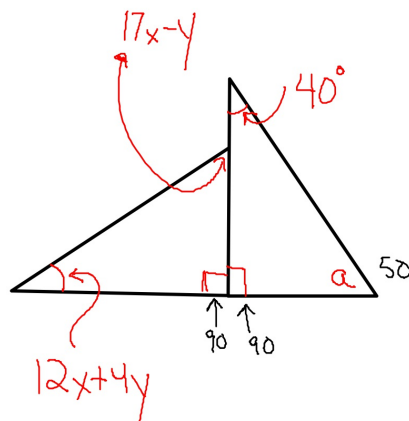
$12x + 4(17x - 50) = 40$   
 $12x + 68x - 200 = 40$   
 $80x = 240$

3rd period Warm up

$$12x + 4y = 40$$

$$17x - y = 50$$

USE INVERSE Operations to solve for y.



$$\begin{array}{r} 90 \\ +40 \\ \hline 130 \end{array}$$

$$\begin{array}{r} 180 \\ -130 \\ \hline 50 \end{array}$$

$$y = 17x - 50$$

$$12x + 4y = 40 \quad \text{Substitute in}$$

$$12x + 4(17x - 50) = 40$$

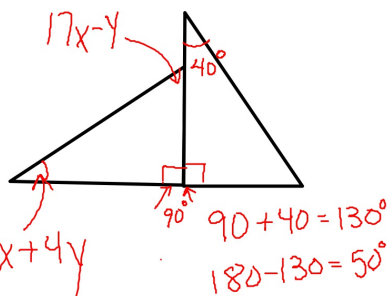
$$12x + 68x - 200 = 40$$

$$80x - 200 = 40 \quad \text{Solve for } x.$$

$$\begin{array}{r} 80x - 200 = 40 \\ +200 \quad +200 \\ \hline 80x = 240 \\ \frac{80}{80} \quad \frac{240}{80} \\ x = 3 \end{array}$$

5th period Warm up

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$$17x - y = 50$$

$$12x + 4y = 40$$

$$\begin{array}{r} 17x - y = 50 \\ +y \quad +y \\ \hline 17x = 50 + y \\ -50 \quad -50 \end{array}$$

INVERSE operation

$$17x - 50 = y \\ \text{or} \\ y = 17x - 50$$

$$12x + 4(17x - 50) = 40$$

Distribute

$$12x + 68x - 200 = 40$$

Combine Like Terms

$$80x - 200 = 40$$

$$+200 \quad +200$$

DIVIDE

$$\begin{array}{r} 80x = 240 \\ \frac{80}{80} \quad \frac{240}{80} \end{array}$$

$$x = 3$$

$$x=3$$

$$17x - y = 50$$

$$17 \cdot 3 - y = 50$$

$$51 - y = 50$$

$$\begin{array}{r} 51 - y = 50 \\ -51 \quad -51 \\ \hline -y = -1 \end{array}$$

$$y = 1$$

Replace  $x$  in  
the 1st  
equation.

### Properties of $\cong \Delta$ 's

REFLEXIVE

$$\Delta ABC \cong \Delta ABC$$

SYMMETRIC

$$\Delta ABC \cong \Delta DEF \text{ then } \Delta DEF \cong \Delta ABC$$

TRANSITIVE

$$\Delta ABC \cong \Delta DEF$$

AND

$$\Delta DEF \cong \Delta GHI$$

$$\Delta ABC \cong \Delta GHI$$

$\Delta ABC \cong \Delta EFG$

$\angle A \cong \angle E$   
 $\angle C \cong \angle F$   
 $105 + 45 = 150^\circ$   
 $180 - 150 = 30^\circ$   
 $\overline{AB} \cong \overline{EG}$   
 $\overline{BC} \cong \overline{GF}$   
 $\Delta ACB \cong \Delta EFG$

# ABSURD MATH

V.2 #1

DUE 1/30/13

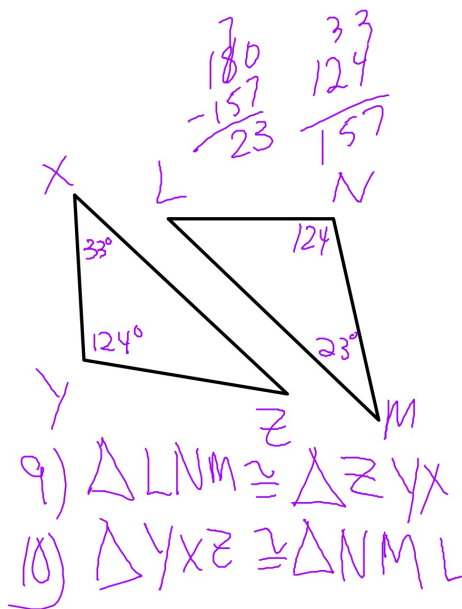
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5)  $m\angle Y = 124^\circ$

6)  $m\angle M = 23^\circ$

7)  $\overline{YX} = \overline{NM}$

8)  $\overline{YZ} = \overline{NL}$

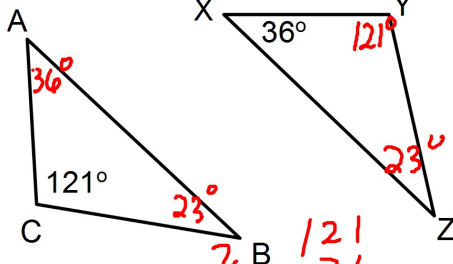


$\triangle ABC \cong \triangle XZY$

List the Corresponding parts  
And find the missing angles

$\angle A \cong \angle X$   
 $\angle B \cong \angle Z$   
 $\angle C \cong \angle Y$

$\overline{AC} \cong \overline{XY}$   
 $\overline{BC} \cong \overline{ZY}$   
 $\overline{AB} \cong \overline{XZ}$



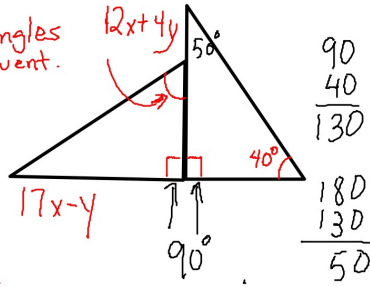
$m\angle A = 36^\circ$   
 $m\angle B = 23^\circ$   
 $m\angle Y = 121^\circ$   
 $m\angle Z = 23^\circ$

Handwritten calculations:  
 $180 - 157 = 23$   
 $36 + 121 = 157$

Quiz Review

find value of x and y

Both triangles are congruent.



$$12x + 4y = 40$$

Solve for y →  $17x - y = 50$

$$-y = 50 - 17x \Rightarrow y = 17x - 50$$

Solve for y →  $12x + 4y = 40$   
 $17x - y = 50$

$$y = 17x - 50$$

$$= 17 \cdot 3 - 50$$

$$= 51 - 50$$

$$y = 1$$

Substitute  $-y = 50 - 17x \Rightarrow y = 17x - 50$

$$12x + 4(17x - 50) = 40$$

$$12x + 68x - 200 = 40$$

$$80x - 200 = 40$$

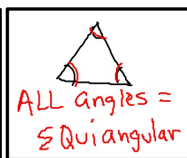
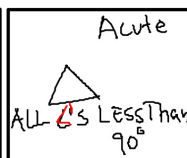
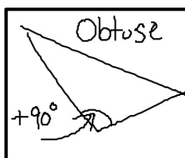
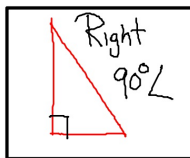
$$\begin{array}{r} 80x - 200 = 40 \\ +200 \quad +200 \\ \hline 80x = 240 \end{array}$$

$$\frac{80x}{80} = \frac{240}{80}$$

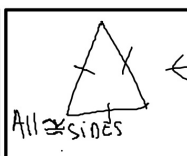
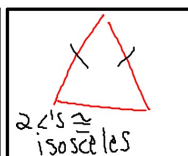
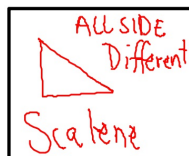
$$x = 3$$

Draw Pictures Name the types of triangles

Classified by angles



Classified by Sides



Equilateral

$$\triangle ABC \cong \triangle XZY$$

List the Corresponding parts  
And find the missing angles

$$\angle A \cong \angle X$$

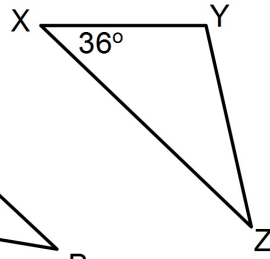
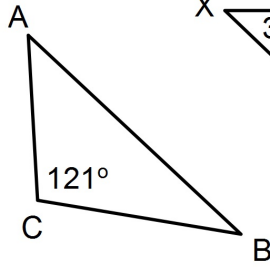
$$\angle B \cong \angle Z$$

$$\angle C \cong \angle Y$$

$$\overline{AB} \cong \overline{XZ}$$

$$\overline{AC} \cong \overline{XY}$$

$$\overline{BC} \cong \overline{ZY}$$



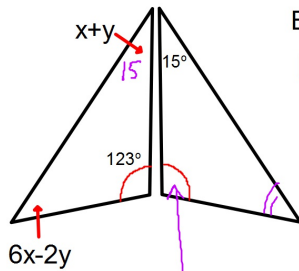
$$m\angle A = 36^\circ$$

$$m\angle B = 23^\circ$$

$$m\angle C = 121^\circ$$

$$\begin{array}{r} 121 \\ 36 \\ \hline 157 \\ 7 \\ \hline 180 \\ 157 \\ \hline 23^\circ \end{array}$$

### Quiz Review



Both triangles are  $\cong$

Find x and y

$$\textcircled{1} \begin{array}{l} x+y=15 \rightarrow x=15-y \\ -y \quad -y \\ \hline x=15-6 \end{array}$$

$$\textcircled{2} \begin{array}{l} 6x-2y=42 \\ \hline x=9 \end{array}$$

$$6(15-y)-2y=42$$

$$90-6y-2y=42$$

$$90-8y=42$$

$$\begin{array}{r} 90-8y=42 \\ -90 \quad -90 \\ \hline -8y=-48 \end{array}$$

$$\begin{array}{r} -8y=-48 \\ \hline -8 \quad -8 \\ \hline y=6 \end{array}$$

$$\begin{array}{r} 123 \\ 15 \\ \hline 138 \\ 180 \\ 138 \\ \hline 42 \end{array}$$