

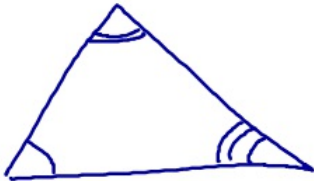
Notes - Day 1 Classifying Triangles

1) Defining Triangles:

$\angle$  = angle

Acute Triangles:

All  $\angle$ 's  $< 90^\circ$



Triangles by Angles

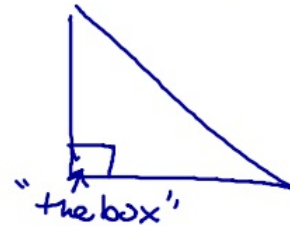
Obtuse Triangles:

one  $\angle > 90^\circ$



Right Triangles:

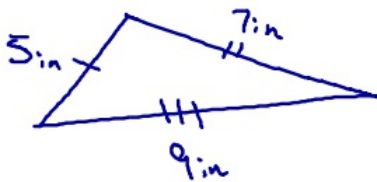
one  $\angle = 90^\circ$



Triangles by Sides:

Scalene Triangle:

No congruent side (not equal)



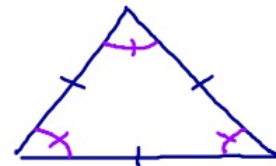
Isosceles Triangle:

two sides are congruent.



Equilateral Triangle:

All sides are congruent



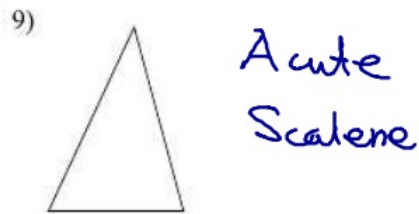
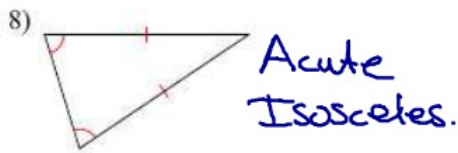
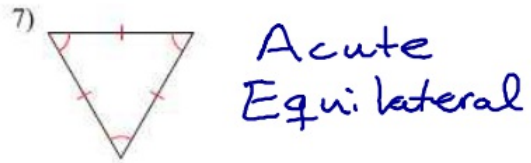
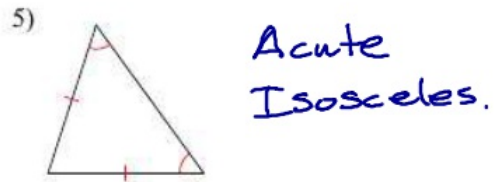
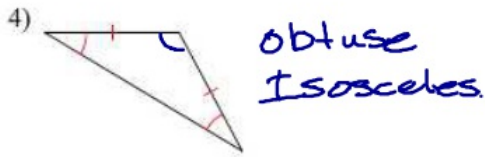
All angles are also congruent.

Triangles are always named by their angle first, then their side.

Classify each triangle by its angles and sides. Equal sides and equal angles, if any, are indicated in each diagram.

2) Right Isosceles

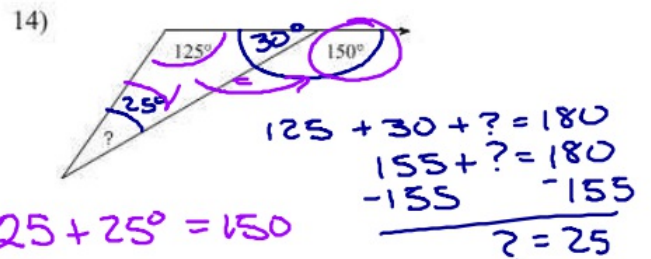
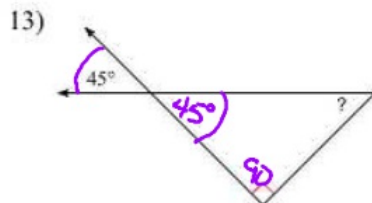
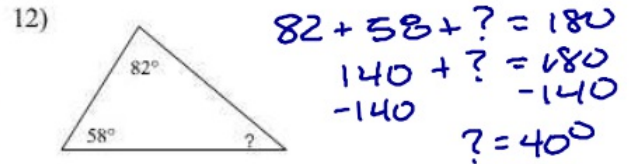
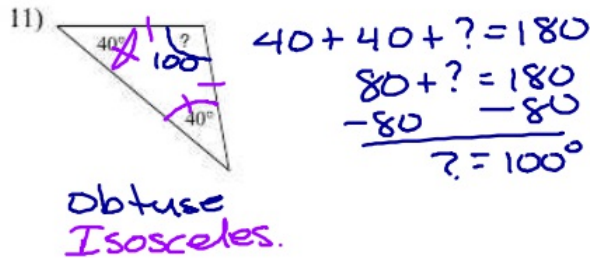
3) obtuse Scalene

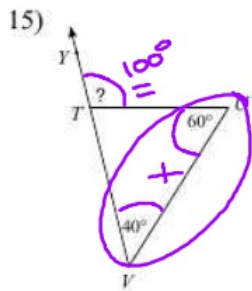


10) Angles of Triangles:

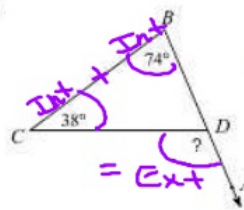
- \* The sum of the interior angles  $180^\circ$
- \* The exterior angle of triangle is equal to the sum of the remote interior angles

Find the measure of each angle indicated.



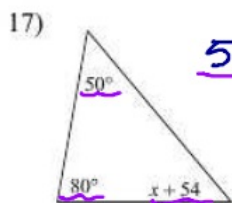


Int + Int = Ext  
 $60^\circ + 40^\circ = ?$   
 $100 = ?$

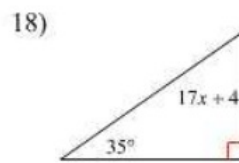


$38^\circ + 74^\circ = ?$   
 $112^\circ = ?$

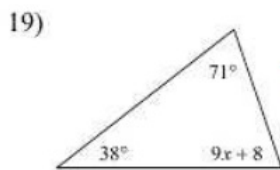
Solve for x.



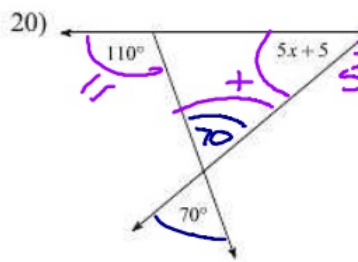
$50 + 80 + x + 54 = 180$   
 $184 + x = 180$   
 $\begin{array}{r} 184 + x = 180 \\ -184 \quad -184 \\ \hline x = -4 \end{array}$



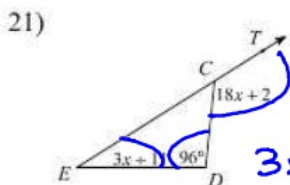
$35 + 17x + 4 + 90 = 180$   
 $129 + 17x = 180$   
 $\begin{array}{r} 129 + 17x = 180 \\ -129 \quad -129 \\ \hline 17x = 51 \\ \frac{17x}{17} = \frac{51}{17} \\ x = 3 \end{array}$



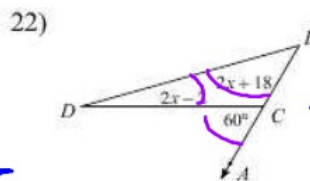
$71 + 38 + 9x + 8 = 180$   
 $9x + 117 = 180$   
 $\begin{array}{r} 9x + 117 = 180 \\ -117 \quad -117 \\ \hline 9x = 63 \\ \frac{9x}{9} = \frac{63}{9} \\ x = 7 \end{array}$



Int + Int = Ext  
 $5x + 5 + 70 = 110$   
 $5x + 75 = 110$   
 $\begin{array}{r} 5x + 75 = 110 \\ -75 \quad -75 \\ \hline 5x = 35 \\ x = 7 \end{array}$



$3x + 11 + 96 = 18x + 2$   
 $3x + 107 = 18x + 2$   
 $\begin{array}{r} 3x + 107 = 18x + 2 \\ -3x \quad -3x \\ \hline 107 = 15x + 2 \\ -2 \quad -2 \\ \hline 105 = 15x \\ \frac{105}{15} = \frac{15x}{15} \\ x = 7 \end{array}$

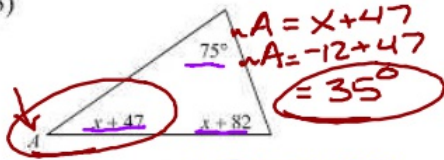


$2x - 2 + 2x + 18 = 60$   
 $4x + 16 = 60$   
 $\begin{array}{r} 4x + 16 = 60 \\ -16 \quad -16 \\ \hline 4x = 44 \\ x = 11 \end{array}$

A) Solve for x

B) Find the measure of angle A. by plugging x in.

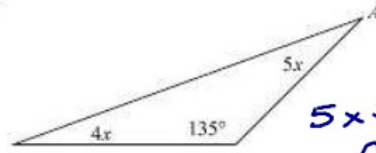
23)



$$75 + x + 47 + x + 82 = 180$$

$$\begin{aligned}
 2x + 204 &= 180 \\
 -204 &-204 \\
 \hline
 2x &= -24 \\
 \frac{2x}{2} &= \frac{-24}{2} \\
 x &= -12
 \end{aligned}$$

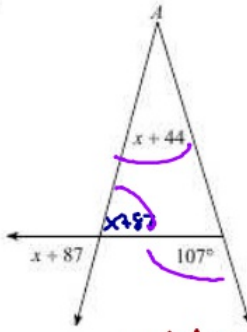
24)



$$\begin{aligned}
 m\angle A &= 5x \\
 &= 5(5) \\
 &= 25^\circ
 \end{aligned}$$

$$\begin{aligned}
 5x + 4x + 135 &= 180 \\
 9x + 135 &= 180 \\
 -135 &-135 \\
 \hline
 9x &= 45 \\
 x &= 5
 \end{aligned}$$

25)

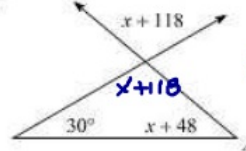


$$x + 44 + x + 87 = 107$$

$$\begin{aligned}
 2x + 131 &= 107 \\
 -131 &-131 \\
 \hline
 2x &= -24 \\
 x &= -12
 \end{aligned}$$

$$\begin{aligned}
 m\angle A &= x + 44 \\
 &= -12 + 44 \\
 &= 32^\circ
 \end{aligned}$$

26)

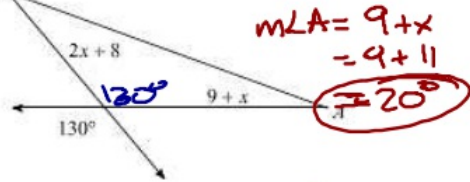


$$x + 118 + x + 48 + 30 = 180$$

$$\begin{aligned}
 2x + 196 &= 180 \\
 -196 &-196 \\
 \hline
 2x &= -16 \\
 x &= -8
 \end{aligned}$$

$$\begin{aligned}
 m\angle A &= x + 48 \\
 &= -8 + 48 \\
 &= 40^\circ
 \end{aligned}$$

27)

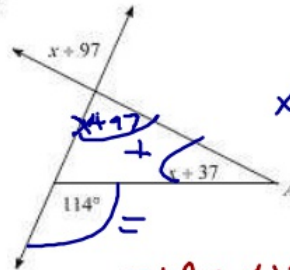


$$\begin{aligned}
 m\angle A &= 9 + x \\
 &= 9 + 11 \\
 &= 20^\circ
 \end{aligned}$$

$$2x + 8 + 130 + 9 + x = 180$$

$$\begin{aligned}
 3x + 147 &= 180 \\
 -147 &-147 \\
 \hline
 3x &= 33 \\
 x &= 11
 \end{aligned}$$

28)



$$x + 97 + x + 37 = 114$$

$$\begin{aligned}
 2x + 134 &= 114 \\
 -134 &-134 \\
 \hline
 2x &= -20 \\
 x &= -10
 \end{aligned}$$

$$\begin{aligned}
 m\angle A &= x + 37 \\
 &= -10 + 37 \\
 &= 27^\circ
 \end{aligned}$$