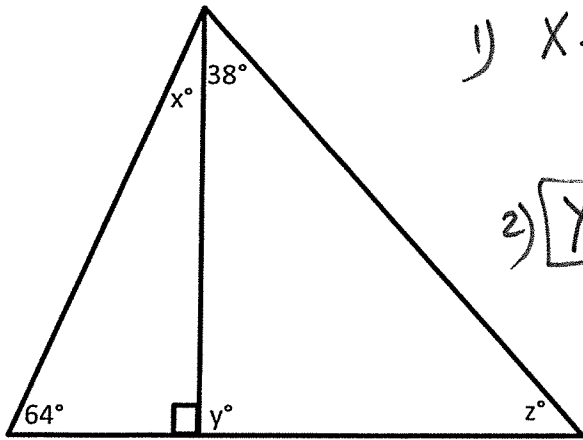


1. Determine the value of each variable. Justify each equation.



1)  $x + 90 + 64 = 180^\circ$  Sum of angles of a triangle

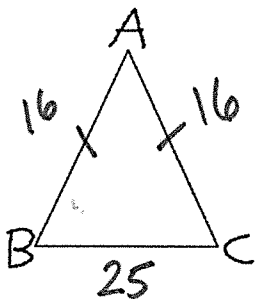
$x = 26^\circ$

2)  $y = 90^\circ$  right angle

3)  $z + 90 + 38 = 180$  Sum of angles of a triangle

$z = 52$

2. Isosceles triangle ABC has the following lengths:  $AB = m + 10$ ,  $BC = 4m + 1$ , and  $CA = 28 - 2m$ . Find the length of each side. Justify your equation.



$m + 10 = 28 - 2m$  isosceles Triangle

$3m + 10 = 28$

$3m = 18$

$m = 6$

$AB = AC = m + 10 = 6 + 10$

$AB = AC = 16$

$BC = 4(6) + 1$

$BC = 25$

3. Which of the terms below can be used to describe a triangle with two interior angles of the same measure and one obtuse interior angle? Circle ALL that apply.

a) Scalene

b) Isosceles

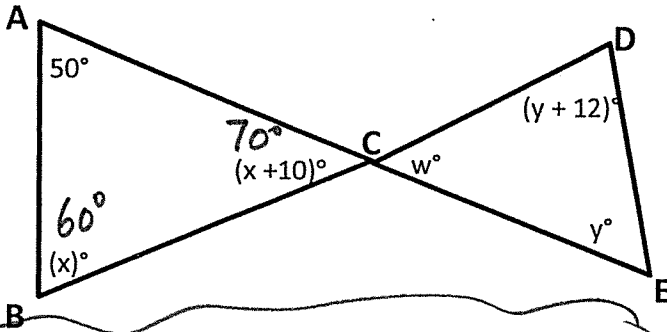
c) Equilateral

d) Right

e) Obtuse

f) Acute

1.) Find the measures of the angles of each triangle. Then classify each triangle by its angles.

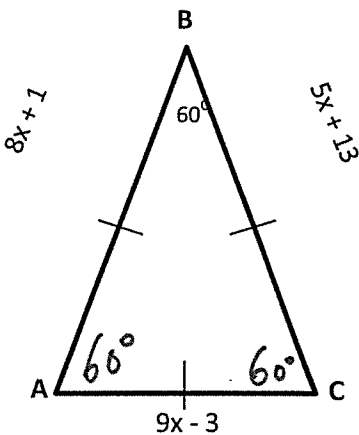


1)  $50 + x + x + 10 = 180^\circ$  Sum of angles of a triangle  
 $x = 60^\circ$   
 2)  $w = 70^\circ$  Vertical angle  
 3)  $70 + y + 12 + y = 180^\circ$  Sum of angles of triangle  
 $y = 49^\circ$

$m\angle B = 60^\circ$      $m\angle DCE = 70^\circ$   
 $m\angle ACB = 70^\circ$      $m\angle D = 61$   
 $m\angle E = 49^\circ$

3.) Find the length of each side and the measure of each angle

All angles are  $60^\circ$ .



$8x+1 = 5x+13$  equilateral triangle  
 $-5x \quad -5x$   
 $3x+1 = 13$

$3x = 12$

$\frac{3x}{3} = \frac{12}{3}$

$x = 4$

$AB = BC = AC = 8(4)+1$   
 $* AB = BC = AC = 33$

For #6-7, justify the two triangles are congruent based off the given information. Make sure to include a congruency statement.

6.) Given:  $AB \cong DE$ ,  $\angle B \cong \angle D$

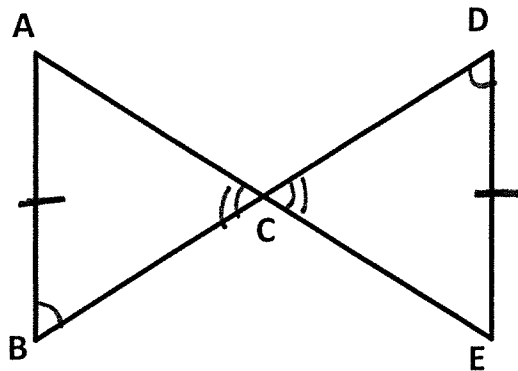
$AB \cong DE$

$\angle B \cong \angle D$

$\angle ACB \cong \angle ECD$  Vertical angles

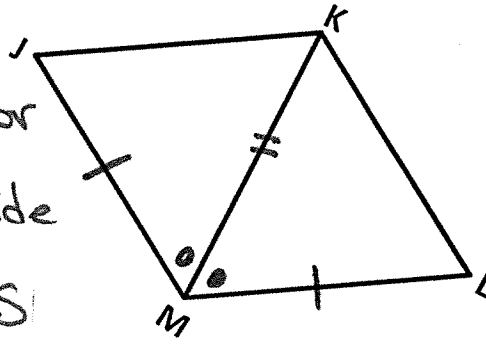
$\triangle ACB \cong \triangle ECD$  by

$AAS$



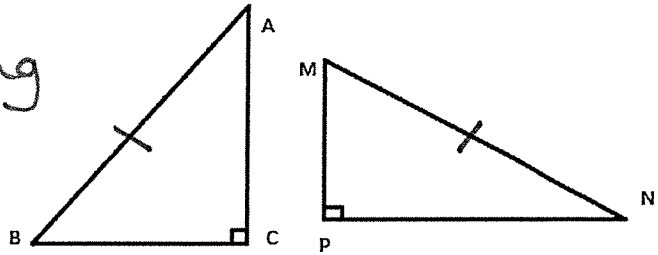
7.) Given:  $JM \cong LM$ ,  $KM$  bisects  $\angle JML$

$JM \cong LM$   
 $\angle JMK \cong \angle LMK$  bisector  
 $MK \cong MK$  shared side  
 $\triangle KJM \cong \triangle KLM$  by SAS

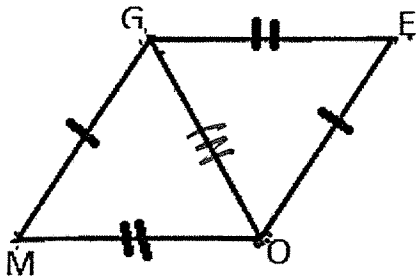


8.) If  $\overline{AC} \perp \overline{BC}$  and  $\overline{MP} \perp \overline{NP}$  and  $\overline{AB} \cong \overline{MN}$ , what other information is needed and what postulate or theorem can be used to prove triangle congruence?

If we are proving it using  
HL, we need a leg  
 $BC \cong MP$   
 or  $AC \cong NP$



9. Write 3 different congruence statements for the pair of triangles below and write a reason



$\triangle GMO \cong \triangle GEO$   
 $\triangle MGO \cong \triangle EGO$   
 $\triangle OMG \cong \triangle OEG$

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