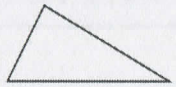
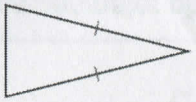
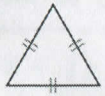
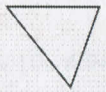
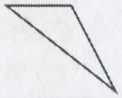
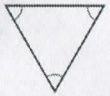
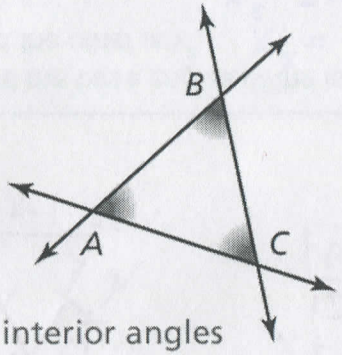
Lesson Title 5.1 Angles of Triangles NOTES **Honors Geometry** **Date** _____

Classifying Triangles by Sides

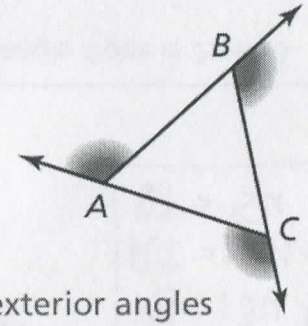
Scalene Triangle	Isosceles Triangle	Equilateral Triangle
		
no congruent sides	at least 2 congruent sides	3 congruent sides

Classifying Triangles by Angles

Acute Triangle	Right Triangle	Obtuse Triangle	Equiangular Triangle
			
3 acute angles	1 right angle	1 obtuse angle	3 congruent angles

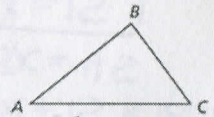


interior angles



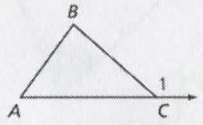
exterior angles

Triangle Sum Theorem: The sum of the measure of the interior angles of a triangle is 180°.



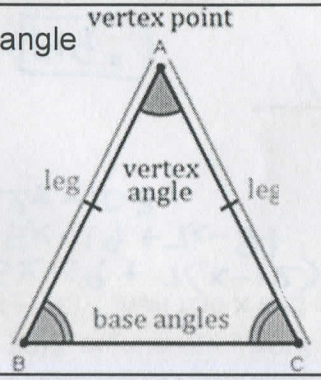
$m\angle A + m\angle B + m\angle C = 180°$

Exterior Angle Theorem: The measure of an exterior angle of a triangle is equal to the sum of the measures of the two nonadjacent interior angles.

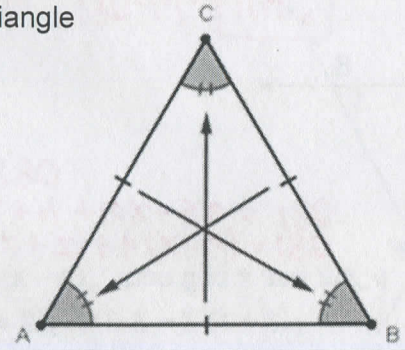


$m\angle 1 = m\angle A + m\angle B$

Isosceles Triangle



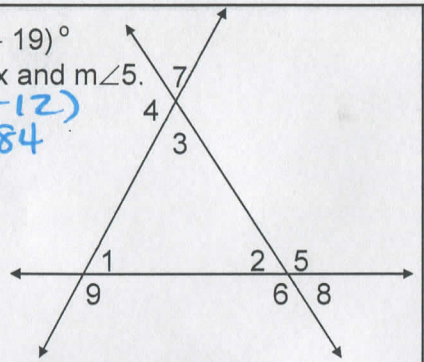
Equilateral Triangle



If $m\angle 6 = (6x + 23)°$, $m\angle 1 = (5x - 19)°$ and $m\angle 3 = 7(x - 12)°$, then find x and $m\angle 5$.

$6x+23 = 5x-19 + 7(x-12)$
$6x+23 = 5x-19+7x-84$
$6x+23 = 12x-103$
$126 = 6x$
$21 = x$

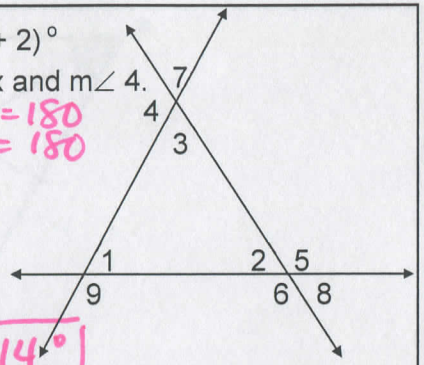
$6(21)+23 = 149°$



If $m\angle 1 = (4x + 8)°$, $m\angle 2 = 2(x + 2)°$ and $m\angle 3 = 6(x - 6)°$, then find x and $m\angle 4$.

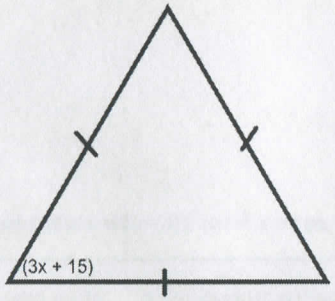
$4x+8+2(x+2)+6(x-6) = 180$
$4x+8+2x+4+6x-36 = 180$
$12x-24 = 180$
$12x = 204$
$x = 17$

$6(17-6) = 66$ $180-66 = 114°$



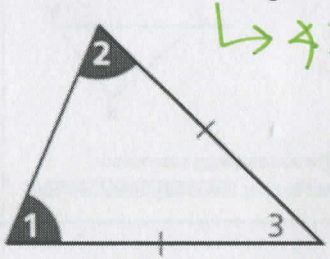
Find the value of x.

$3x+15 = 60$
$3x = 45$
$x = 15$



Name the vertex angle and base angles.

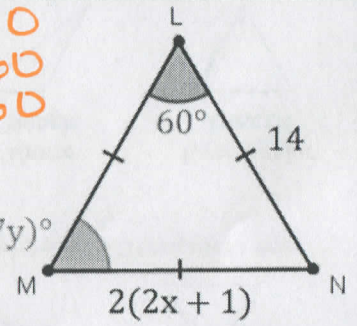
↳ $\angle 3$ ↳ $\angle$'s 1 & 2



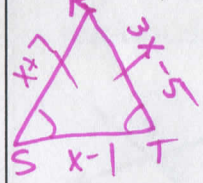
Solve for x and y

$4x+2 = 14$
$4x = 12$
$x = 3$

$6x+7y = 60$
$6(3)+7y = 60$
$18+7y = 60$
$7y = 42$
$y = 6$

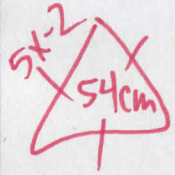


$\triangle RST$ is an isosceles triangle. $\angle R$ is the vertex angle, $RS = x + 7$, $ST = x - 1$, & $RT = 3x - 5$. Find x, RS, ST, & RT.



$x+7 = 3x-5$
$12 = 2x$
$6 = x$

$RS = 13u$
$RT = 13u$
$ST = 5u$

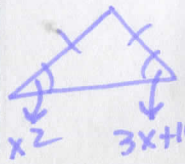


An equilateral triangle has a perimeter of 54 centimeters. One side measures $5x - 2$. Find the value of x.

$54 \div 3 = 18$ $5x-2 = 18$
$5x = 20$
$x = 4$

Find the base angles of the isosceles triangle if one is $3x + 10$ and the other is x^2

$x^2 = 3x+10$
$x^2-3x-10 = 0$
$(x-5)(x+2) = 0$
$x-5=0$ $x+2=0$
$x = 5, -2$



Still need help with: