

Al Geometry

Classifying Triangles Measuring Angles in Triangles

Angle Sum theorem - the sum of the ^{measures of the} ~~measures~~ ^{angles} of a triangle = 180°



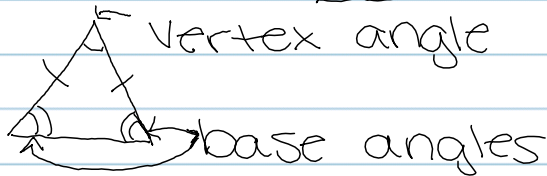
classified by \angle

- * acute triangles - all angles are acute angles
- * obtuse triangles - one of the angles is obtuse
- * right triangles - one angle is 90° on \perp

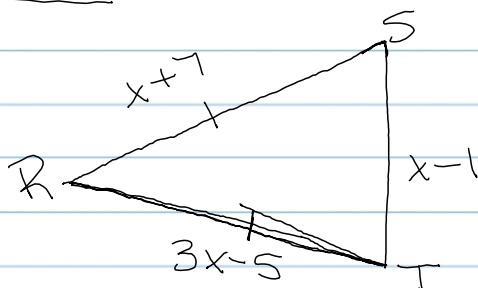
classified by Sides

- * equilateral triangles - all angles are congruent, all sides are congruent

- * scalene triangles - none of sides are congruent
- * isosceles triangles - at least 2 sides are \cong



isosceles



$$\begin{aligned} x+7 &= 3x-5 \\ 7 &= 2x-5 \\ 12 &= 2x \\ 6 &= x \end{aligned}$$

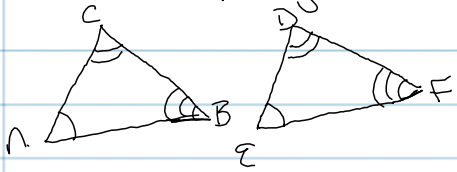
Right Δ

ΔABC is a ^{right} Δ if $\angle BAC = 3x+1$ & $\angle ACB = 2x+4$

What is x
What is $m\angle BAC$, $m\angle ACB$

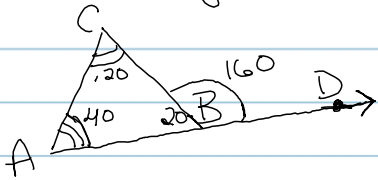
$$\begin{aligned} 2x+4+3x+1 &= 90 \\ 5x+5 &= 90 \\ 5x &= 85 \\ x &= 17 \end{aligned}$$

Third Angle Theorem - if 2 angles of one triangle are congruent to 2 angles of a second Δ then the 3rd angles of the Δ 's are \cong .



if $\angle ABC \cong \angle EFD$ &
 $\angle ACB \cong \angle EDF$ then
 $\angle CAB \cong \angle DEF$

Exterior Angle Theorem - the measure of an exterior \angle of a Δ is = the sum of the measures of the 2 remote interior \angle 's



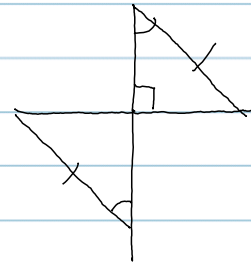
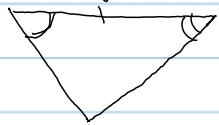
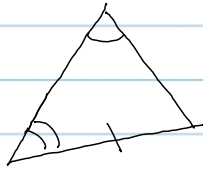
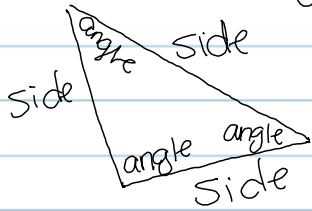
$$m\angle CBD = m\angle BCA + m\angle BAC$$

$$160^\circ = 40^\circ + 20^\circ$$

A4 Geometry

Congruent triangle
same size and shape

Def. of Congruent Triangles - 2 triangles are \cong
if and only if their
corresponding parts
are \cong



Δ proofs - ASA
SAS
AAS