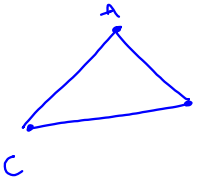
4.1 Triangles and Angles

a figure formed by three segments joining three noncollinear pts



△ABC

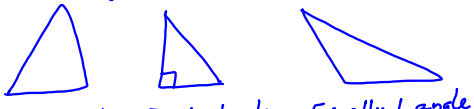
Classifying Triangles by sides

No sides ≅ — Scalene

At least 2 sides ≅ — Isosceles

All sides ≅ — Equilateral

by angles



all angles $< 90°$ — acute

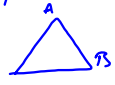
Exactly 1 angle $= 90°$ — Right

Exactly 1 angle $> 90°$ — Obtuse

All angles ≅ — Equiangular

Triangle by Parts

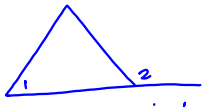
Vertex A, B, C



sides $\overline{AB}$, $\overline{BC}$, $\overline{AC}$

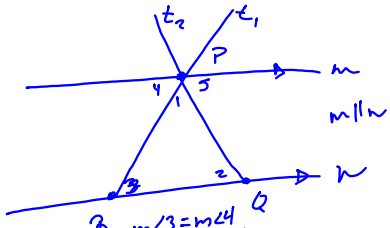
in Isosceles — the 2 equal sides are legs, the other side is the base

Right — the side opposite the right angle is called hypotenuse, the other sides are legs



∠1 is an interior angle (Inside)

∠2 is an exterior angle



$m \parallel n$

$m\angle 3 = m\angle 4$

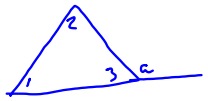
$m\angle 2 = m\angle 5$

$m\angle 1 + m\angle 4 + m\angle 5 = 180$

$m\angle 1 + m\angle 2 + m\angle 3 = 180$

Thm 4.1 Triangle sum thm

Thm 4.2 Exterior angle Thm



from 4.1 $m\angle 1+m\angle 2+m\angle 3=180$

$\angle 3, \angle a$ Linear pair

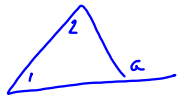
$m\angle 3+m\angle a=180$

$m\angle 1+m\angle 2+m\angle 3 = m\angle 3+m\angle a$

$m\angle 1+m\angle 2=m\angle a$

Thm 4.2

The measure of the exterior angle of a triangle is equal to the sum of the two nonadjacent angles



$m\angle a = m\angle 1 + m\angle 2$

Cordlary to Thm 4.1

In a right triangle, the sum of the two acute angles is 90°

Can not have two right angles or two obtuse in one triangle

P 198 - 200

2 - 44 even,

skip 40