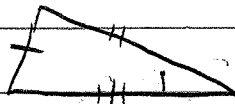


4.1 Triangle Sum Properties

Δ 's by sides



no sides \cong
Scalene

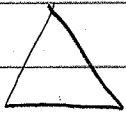


2 sides \cong
Isosceles

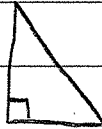


All sides \cong
Equilateral

Δ 's by angles



all \angle 's less than 90°
Acute triangle



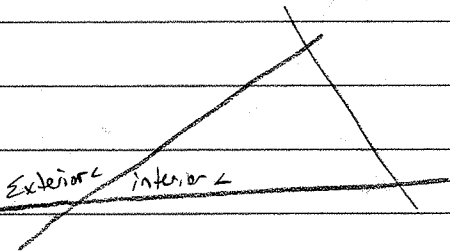
Right angle
Right triangle



An \angle more than 90°
Obtuse triangle

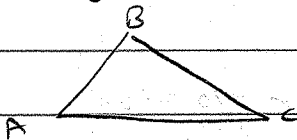


All \angle 's \cong
Equiangular triangle



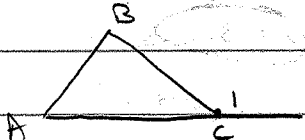
Exterior - outside
Interior - inside

Triangle Sum Theorem



$$m\angle A + m\angle B + m\angle C = 180^\circ$$

Exterior Angle Theorem



(2c)

$$\left. \begin{aligned} m\angle ACB + m\angle 1 &= 180 \\ m\angle A + m\angle B + m\angle C &= 180 \end{aligned} \right\} \begin{aligned} \text{both} &= 180, \\ \text{So} &= \text{each other} \end{aligned}$$

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

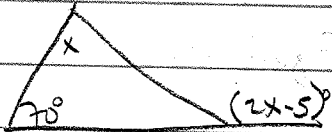
* The exterior angle is equal to sum of the 2 opposite interior angles

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

P221: 1-10,
15-18,
21-26, 36

Example

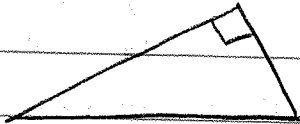
Solve for x



$$2x - 5 = 70 + x$$

$$x - 5 = 70$$

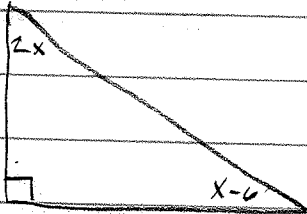
$$x = 75$$



In a right Δ , the non-right angles are complementary

Example

Solve for x



$$2x + x - 6 = 90$$

$$3x - 6 = 90$$

$$3x = 96$$

$$x = 32$$

$$\text{or } 2x + x - 6 + 90 = 180$$

$$3x + 84 = 180$$

$$3x = 96$$

$$x = 32$$