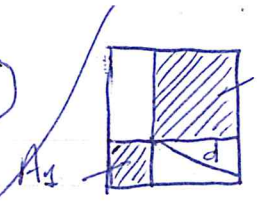
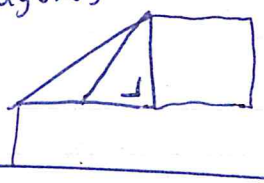
Geometry



Prove $d^2 = A_1 + A_2$

Pythagorus



Congruent Δ's mean identical Δ's so whatever one has, other has - once you prove they are identical / congruent you can share their information.

CONGRUENT IF....

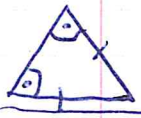
SSS → all sides (lengths of) on each Δ are equal

SAS → 2 sides (lengths) and angle in between are equal

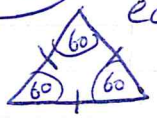
ASA → 2 angles and side (length) inbetween are equal

RHS → Both Δ's have 90° angle same Hypotenuse and one other side same length.

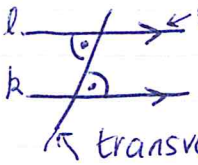
Collinear – on same line



isosceles Δ



equilateral Δ



parallel

alternate angles are =

transversal l,k MUST be parallel

Vertically opp angles are =

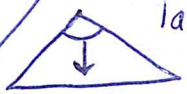
Scalene

Corresponding angles are =

A = B + C exterior angle

Q10 p83

Q11 p83



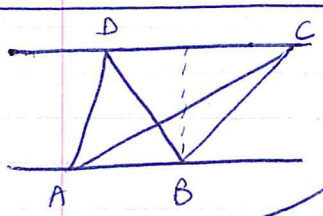
largest angle is opp longest side + converse

smallest angle is opp smallest side + converse

Two sides of a Δ are together > third side

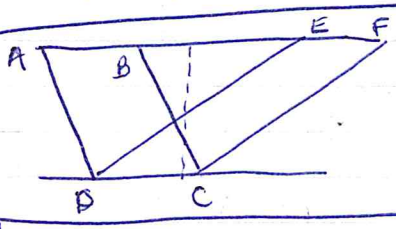
Area of Δ = ½ length one side × ⊥ from that side to opp. vertex

Area of ▱ = length one side × ⊥ distance between that side & opp. side



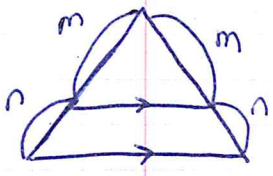
Area Δ ABC = Area Δ ADB (same base same ⊥ height)

P87 Q8, P88 Q12



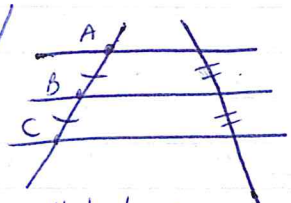
Area ▱ EFCD = Area ▱ ABCD

same base, same ⊥ distance between opp sides



A line parallel to one side of a Δ divides the other two sides in same ratio

Ex 2 pg 90



If 3 parallel lines cut off equal segments on some transversal then they will cut off equal segments on any other transversal.

Similar Δ's are usually NOT identical

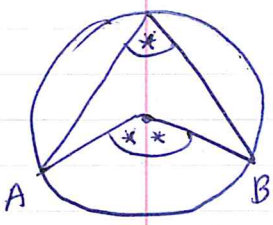
They have same angles but are scaled versions of each other

If two Δ's are similar, then their sides are proportional, in order

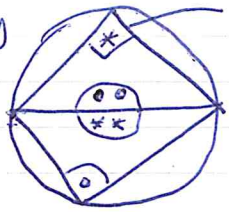
$\frac{\text{one side}}{\text{corresponding side}} = \frac{\text{any other side}}{\text{its corresponding side}}$

Q6 pg 92 | Q8 pg 93 | Q13 pg 94 | Q16 pg 94 | Q21 pg 95

Circle Theorems

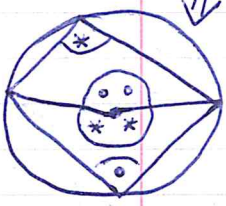


corollary ⇒

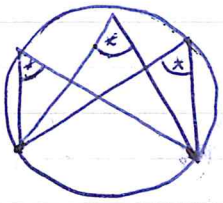


90° when arc is a diameter

Angle standing on a diameter is always 90°

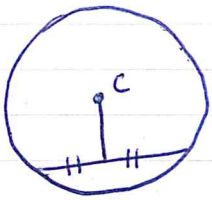


Corollary ⇒

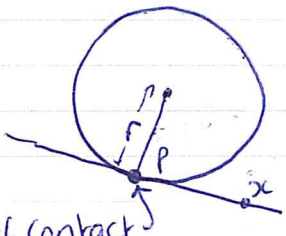


Angles on circle edge standing on same arc are equal

Opp angles in a cyclic quadrilateral add upto 180°



The ⊥ from centre of C to a chord bisects the chord.



A Tangent is ⊥ to the radius that goes to point of contact

if P is on circle and a line Px is ⊥ to the radius to P, then Px is a tangent to the circle

!!! ALWAYS mark radii as equal - it REALLY helps to solve many q's.

E2 pg 97

A corollary is a statement attached to a theorem which has been proved and follows logically from it

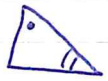
If two circles intersect at one point only, then the two centres and the point of contact are collinear.

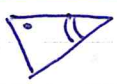
Q3 pg 99 | Q4 p 99 | Q5 p 99 | → 6, 7, 8, 9, 10 also | → keep going → 19

Q24 pg 103, PRACTICE helps a LOT!

use a pencil for messing with diagrams / putting in angles etc

Rem





third angles must be =