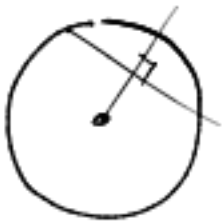
MA495

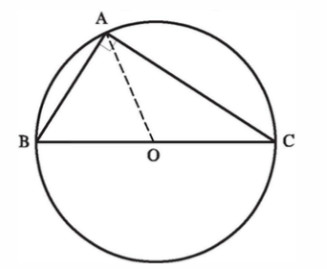
- Final Project instead of exam. Details on Notes Page.

Wednesday - week 9 :

✓ • this is hard. But let's keep on.

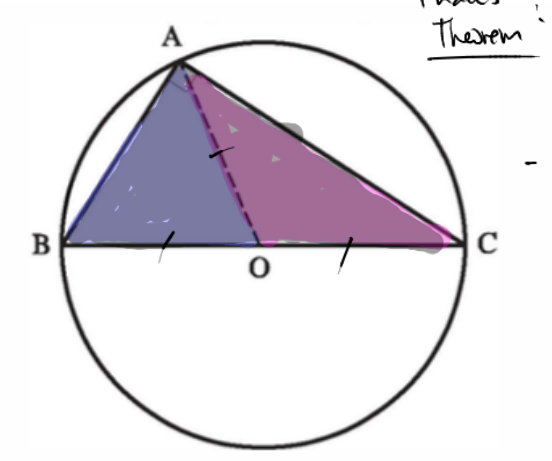
✓ •  Desmos / HW

✓ •  Inscribed circle : Desmos.

• 

Thales / Desmos Thm

• Similar Δ's



Thales' Theorem: In any circle, a triangle inscribed in a semi-circle is right.

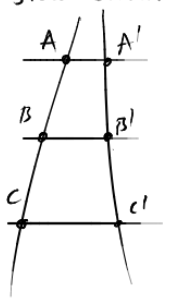
- Note: this is a Euclidean Result; Interior Angles of Δ sum to 180°

Key: 3 triangles to use

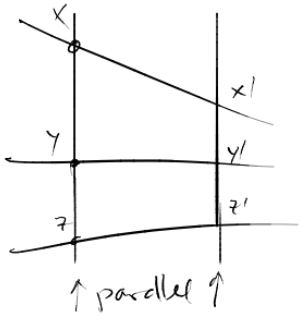
: Isosceles Δ theorem

Similar Δ's : ⟶ If AAA ⇒ ratios of corresponding sides are =.

Equivalent to: side-cutter theorem



$\Rightarrow \frac{AB}{BC} = \frac{A'B'}{B'C'}$ ½

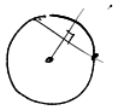


$\Rightarrow \frac{XY}{X'Y} = \frac{YZ}{Y'Z'}$

Note: In hyperbolic geometry we get: AAA ⇒ triangles themselves are ≅.

angles completely determine the Δ: length of sides & area.

Prop. Every Δ has an inscribed $\bigcirc$.

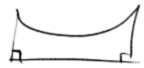
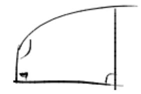


Prop Given a circle, a chord of the circle is a segment intersecting it twice.

The $\perp$-bisector of any chord intersects the center.

Curvature:

various types

		
Euclidean	Hyperbolic	Elliptic "Lambert"

total curvature

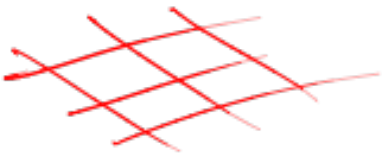
Curvature: 0

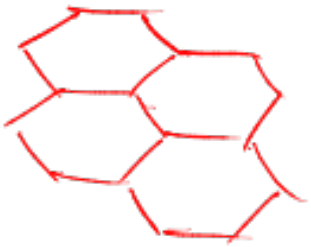
Flat

Negative

saddle

positive





tilings of $\mathbb{R}^2$

2 types of 17 total possible tilings