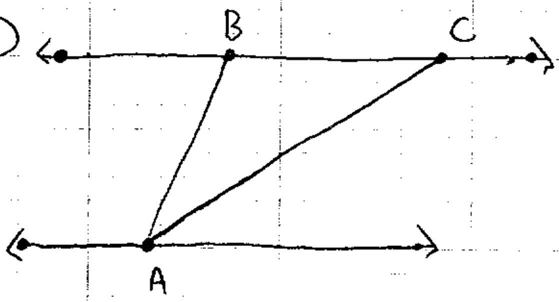
MEDU 2010

HW #4

18/20

Josiel N

9.22.16

① 

Is this your conjecture?

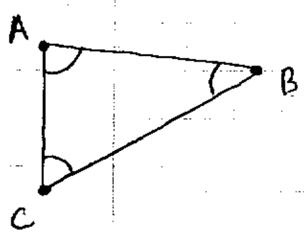
Moving the point A in Geogebra, I noticed that the area of the ~~[illegible]~~ triangle statyed the same. ✓

3/4

1.3.2: I know that the area of a triangle is $\frac{1}{2} \cdot b \cdot h$. I noticed in this ✓excercise that $\overline{BC}$ or the base of the triangle, is not changing. I noticed the height isnt changing as well because we created a movable point on a parallel line, thats parallel to the base.

and ...??

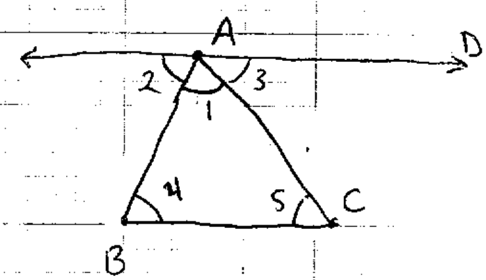
② $\alpha + \beta + \gamma = 180°$



Whenever I dragged a point, the sum of the angles stayed the same. &

CONJECTURE: The interior angles of a triangle add up to 180°. ✓

PROOF: I have a triangle A B C, and a line D, intercecting A.



$\angle 1 + \angle 2 + \angle 3$ Make a straight line so they equal 180°.

4/4

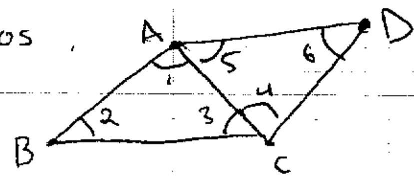
Since alternate interior angles are equal, $\angle 2 = \angle 4$ and $\angle 3 = \angle 5$

Trerefore $\angle 1 + \angle 4 + \angle 5 = 180°$ □

③ CONJECTURE: The sum of the interior angles of a quadrilateral adds up to 360°. ✓

PROOF: In Desmos,

not GeoGebra?



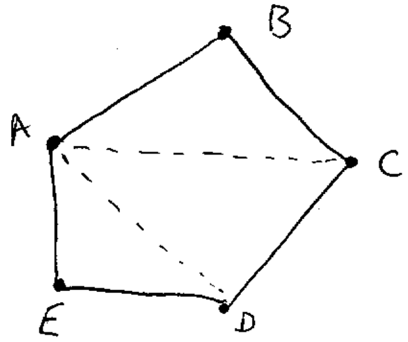
We proven that the sum of the interior angles of a triangle is 180°.

4/4

A quadrilateral can be 2 triangles put together. So since their are 2 triangles their are 2 (180°) sum. So the total sum of the interior angles of a quadrilateral is 360°.

□

(4)



CONJECTURE: The sum of the interior angles for a pentagon add up to $540°$.

Proof: A pentagon is just 3 triangles put together.

$\frac{4}{4}$ The sum of the interior angles for 1 triangle is $180°$. So the sum of the interior angles of the pentagon should be $180° + 180° + 180°$ which is $540°$.

$\square$

(5) CONJECTURE: The sum of the interior angles of any polygon with n-sides is $180(n-2)$.

Proof: Any polygon can be divided into triangles. And can be represented as $n-2$. Since every triangle has an interior sum of $180°$, any polygon angle sum can be $180(n-2)$.

$\frac{3}{4}$

$\square$

Do you mean that any n-gon can be divided into n-2 triangles? How can you see this?