Measuring Interior Angles

Short-answer questions involving length, angle, and area.

Geogebra link: `https://tube.geogebra.org/m/zrapvzpz`

Problem 1 *Measure the interior angles of quadrilateral $ABCD$ above.*

(a) $m\angle A =$ $\boxed{31}$ *degrees.*

(b) $m\angle B =$ $\boxed{26.74}$ *degrees.*

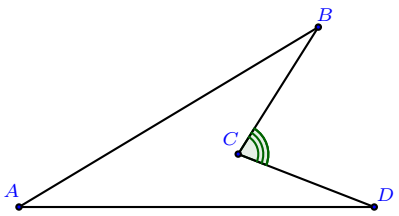
(c) $m\angle C =$ $\boxed{281}$ *degrees.*

(d) $m\angle D =$ $\boxed{21.25}$ *degrees.*

(e) $m\angle A + m\angle B + m\angle C + m\angle D =$ $\boxed{360 degrees}$.

Hint: *Be sure to measure interior angle as an amount of turning between the two sides of the angle.*

Problem 2 *Use the measurements from the previous problem to answer the following questions:*



(a) *The marked angle should measure* $\boxed{79}$ *degrees.*

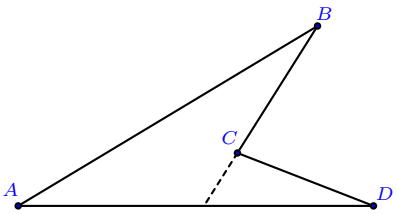
(b) $m\angle A + m\angle B + m\angle D =$ $\boxed{79}$ *degrees.*

(c) *What do you notice?*

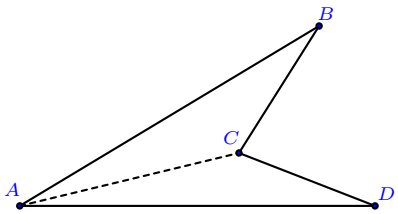
Free Response: ***Hint:*** *They should be the same because, in both cases, adding the interior angle at C should give 360°.*

Author(s): Brad Findell

Problem 3 *In order to reason about the sum of the interior angles, Bart and Brad each* triangulated *the figure as shown below.*



Brad's triangulation



Bart's triangulation

Both Bart and Brad claim that because in a triangle the sum of the interior angles is 180 *degrees, and this quadrilateral is cut into* 2 *triangles, the angle sum in this quadrilateral should be* 360 *degrees. What is your judgment?*

Multiple Choice:

(a) *They are both correct.*

(b) *Only Brad is correct.*

(c) *Only Bart is correct.* ✓

(d) *Neither of them are correct.*

Explain your reasoning.

Free Response: ***Hint:*** *In Bart's triangulation, the interior angles of the quadrilateral are composed only of interior angles of the triangles. But in Brad's triangulation, a new angle has been created with a vertex between A and D, and part of interior angle C has been lost.*