

Measuring Interior Angles

Short-answer questions involving angles in triangles.

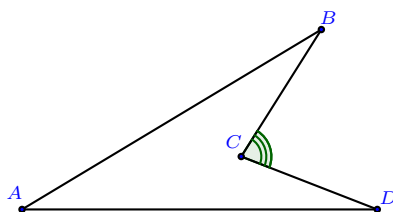
Geogebra link: <https://tube.geogebra.org/m/zrapvzpz>

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:

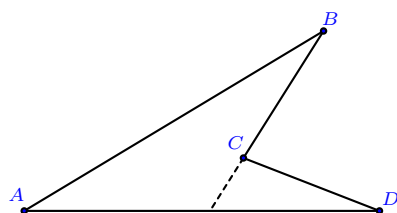


- (a) The marked angle should measure $\boxed{79}$ degrees.
- (b) $m\angle A + m\angle B + m\angle D = \boxed{79}$ degrees.
- (c) What do you notice?

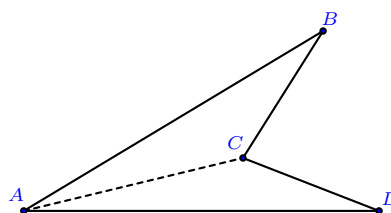
Free Response: **Hint:** They should be the same because, in both cases, adding the interior angle at C should give 360° .

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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 about their reasoning?

Multiple Choice:

- (a) Both are reasoning correctly.
- (b) Only Brad is reasoning correctly.
- (c) Only Bart is reasoning correctly. ✓
- (d) Neither of them are reasoning correctly.

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.