

Measuring Interior Angles

Short-answer questions involving angles in triangles.

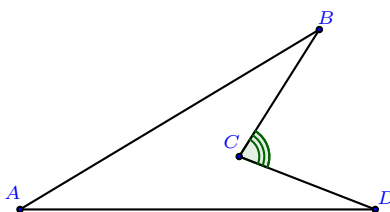
Geogebra link: <https://tube.geogebra.org/m/zrapvzpz>

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:

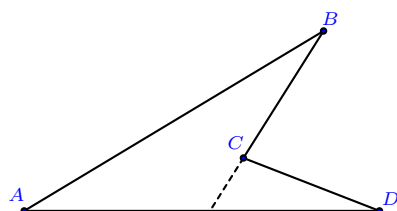


- (a) The marked angle should measure $\boxed{79}$ degrees.
- (b) $m\angle A + m\angle B + m\angle D = \boxed{79}$ degrees.
- (c) What do you notice?

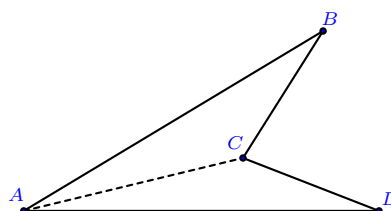
Free Response: **Hint:** They should be the same because, in both cases, adding the interior angle at C should give 360° .

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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 $\boxed{180}$ degrees, and this quadrilateral is cut into $\boxed{2}$ triangles, the angle sum in this quadrilateral should be $\boxed{360}$ 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.