

Measuring Interior Angles

Short-answer questions involving angles in triangles.

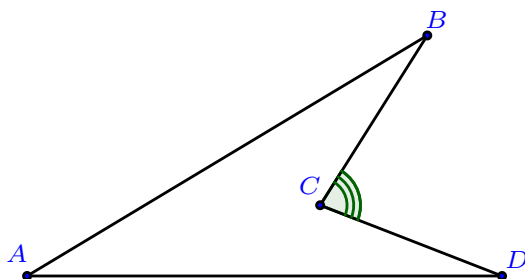
Geogebra link: <https://tube.geogebra.org/m/zrapvzpz>

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:



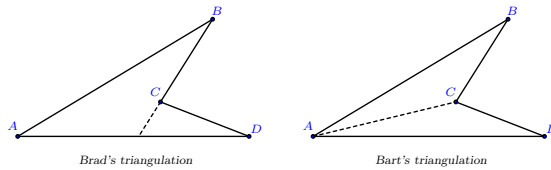
- (a) The marked angle should measure $\boxed{79}$ degrees.
- (b) $m\angle A + m\angle B + m\angle D = \boxed{79}$ degrees.
- (c) What do you notice?

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

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



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.