Polygon Measurement

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

Measuring Carefully

Adjust the figures to find the requested measurements.

Geogebra link: https://tube.geogebra.org/m/gjf28er6

Problem   **1**   *In figure above, when point C is adjusted so that BC is perpendicular to AC, $AC =$* $\boxed{2.1}$.

Hint: *When two lines are perpendicular, they cross to create four congruent angles.*

Hint: *Use the corner of a piece of paper.*

Geogebra link: https://tube.geogebra.org/m/q32gyaud

Problem   **2**   *In $\triangle ABC$ above, move point D to make the following measurements. Enter -1 if it is not possible.*

(a) When $\overline{BD}$ is a median, $AD =$ $\boxed{2.25}$.

    Hint: *A median is drawn from a vertex to the midpoint of the opposite side.*

(b) When $\overline{BD}$ is a angle bisector, $AD =$ $\boxed{2.77}$.

    Hint: *An angle bisector cuts an angle in half. Focus near the vertex of the angle rather than near D.*

(c) When $\overline{BD}$ is a perpendicular bisector, $AD =$ $\boxed{-1}$.

    Hint: *An perpendicular bisector cuts an segment in half and is perpendicular to it.*

(d) When $\overline{BD}$ is a altitude, $AD =$ $\boxed{6.45}$.

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Hint: *An altitude contains a vertex and is perpendicular to the line containing the opposite side.*

Geogebra link: <https://tube.geogebra.org/m/a888zyw2>

Problem 3 *In* $\triangle ABC$ *above, the height to base* $\overline{AC}$ *is* $\boxed{3.585}$.

Hint: *You may move point D. A height is the length of an altitude, which must be perpendicular to the line containing the chosen base.*

Geogebra link: <https://tube.geogebra.org/m/kta9hbuf>

Problem 4 *In* $\triangle ABC$ *above, the height to base* $\overline{AC}$ *is* $\boxed{3.511}$.

Hint: *You may move point D. A height is the length of an altitude, which must be perpendicular to the line containing the chosen base.*