

Homework 2

Due by 4 p.m. on November 11, 2022

State clearly what postulates, propositions or facts you use from the module.

1. Consider figure 1 below. Suppose that AB is parallel to CD and AC is parallel to BD . Prove that $|AB| = |CD|$ and $|AC| = |BD|$.

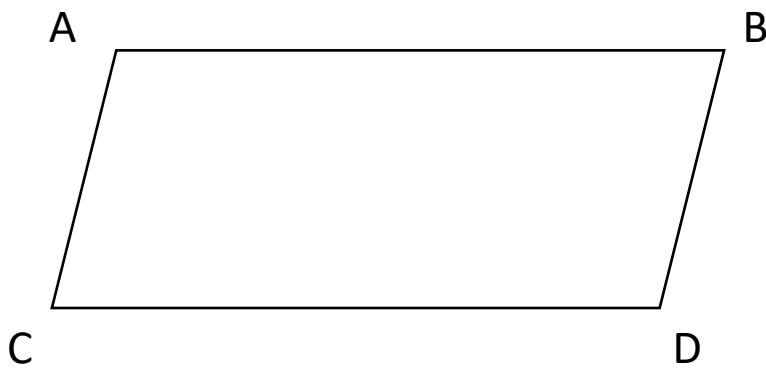


Figure 1

2. Consider the triangle $\triangle ABC$. Suppose that $|AC| > |AB|$. Prove that $|\angle ABC| > |\angle BCA|$.

3. In figure 2 below $|AM| = |MC|$ and $\angle BAM = 2 \angle MAC$. Prove that $|AB| = |BM|$.

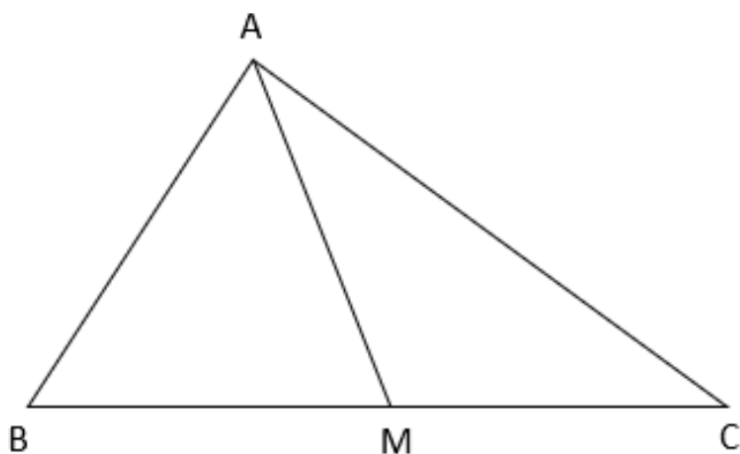


Figure 2

4. In figure 3 below AD is perpendicular to BC . If $|AB| = 4$, $|AC| = 5$ and $|BE| = 3$, then what is $|EC|$? Justify your answer.

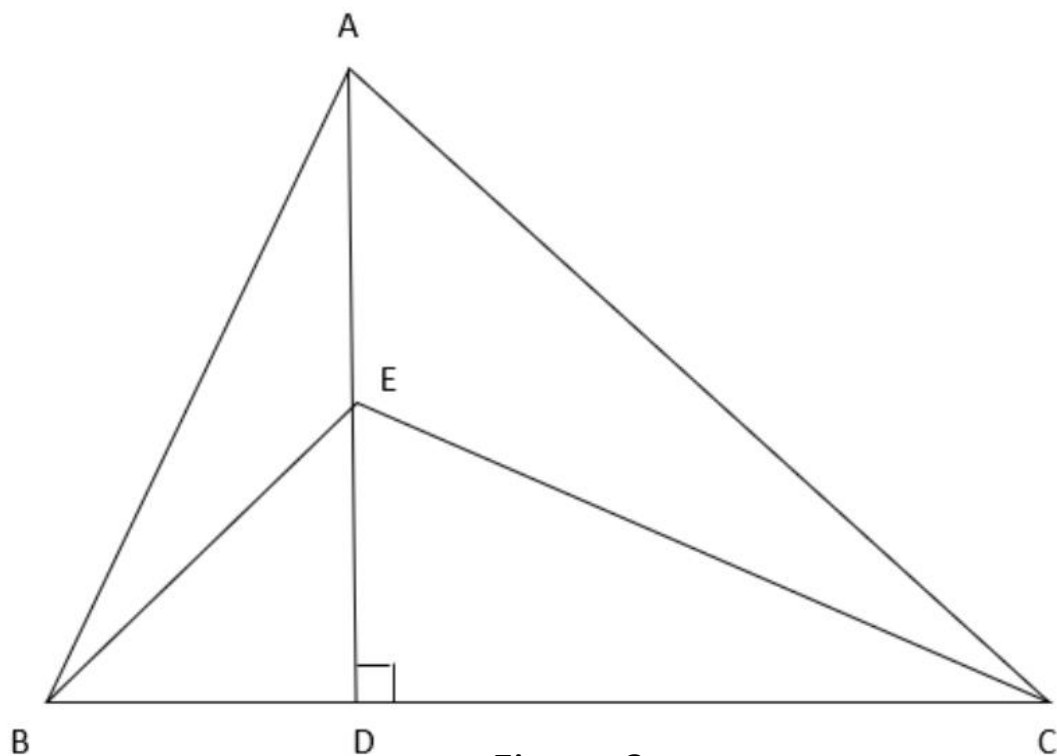


Figure 3

5. In the triangle $\triangle ABC$ in figure 4 below, EF is parallel to BC and DF is parallel to EC . If $|AE| = 5$ and $|AB| = 6$, then what is $|AD|$? Justify your answer.

