Trigonometry in One Picture

Training problems for M2 2018 term 1

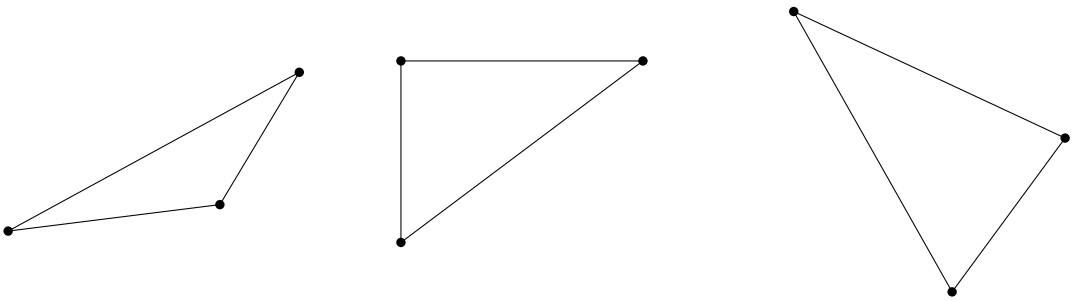
Ted Szylowiec
tedszy@gmail.com

1 Labeling geometrical figures

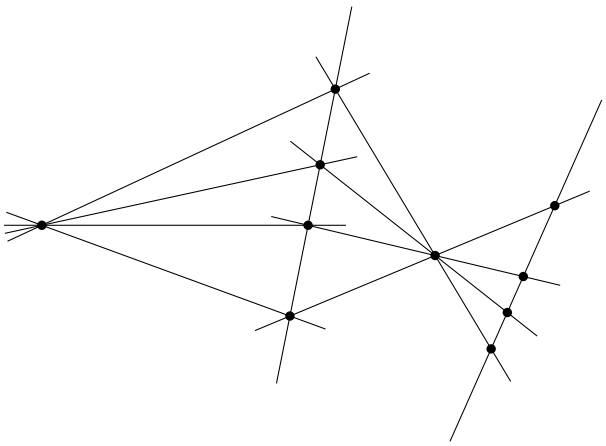
1. Practice writing Greek letters.

$\alpha\beta\gamma\delta\epsilon\theta\lambda\mu\pi\phi\psi$

2. Label the sides, angles and vertices of these triangles using the classical method, in counterclockwise order.



3. Use primes to label the figure in a logical way.



4. Use a ruler and compass to construct a counterexample for AAA. Construct two triangles having equal corresponding angles, but not conguent. Label your triangles and write down all the relationships. Is your zoom factor bigger or smaller than 1?

5. Give a counterexample for ASS, SSA. Construct two triangles where ASS is true, but they are not congruent. Use a ruler and compass. Label your triangles. Write down the relationships for the sides and angles.

6. Start with basic facts about parallel lines and the triangle area formula. Prove the parallelogram area formula using SSS. Use diagrams and clearly explain the steps of your thinking.

7. Prove the parallelogram area formula using SAS.

8. Prove the paralellogram area formula using AAS.

9. Prove the parallelogram area formula using ASA.