# Trigonometry in One Picture

Training problems for M2 2018 term 1
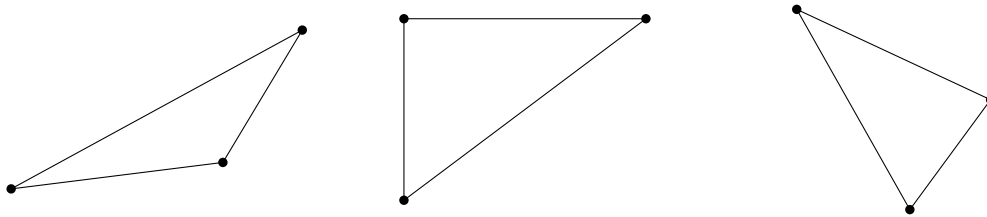
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## 1  Labeling geometrical figures
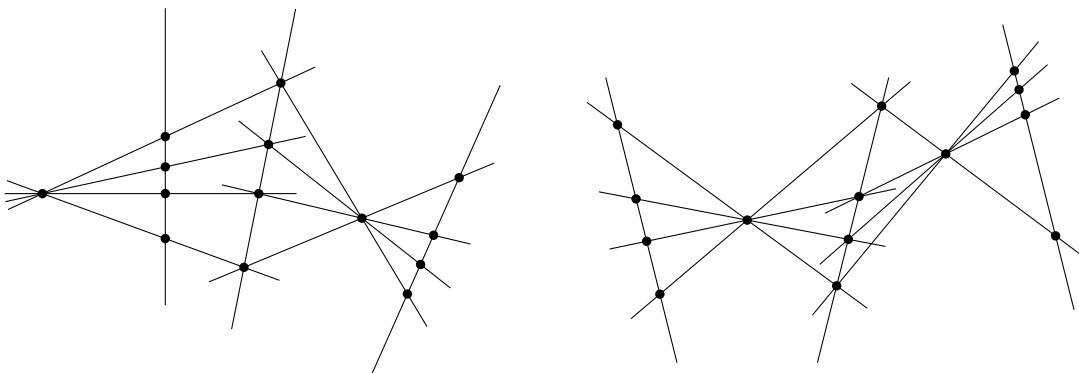
**1.** Practice writing Greek letters.

$$\alpha\beta\gamma\delta\epsilon\theta\lambda\mu\pi\phi\psi$$
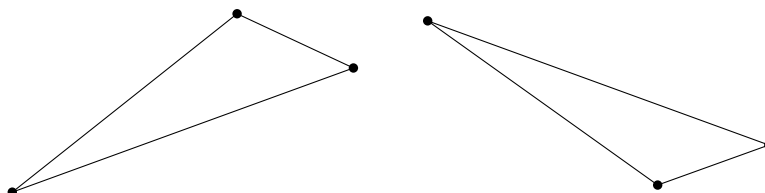
**2.** Label the sides, angles and vertices of these triangles using the classical method, in counterclockwise order.
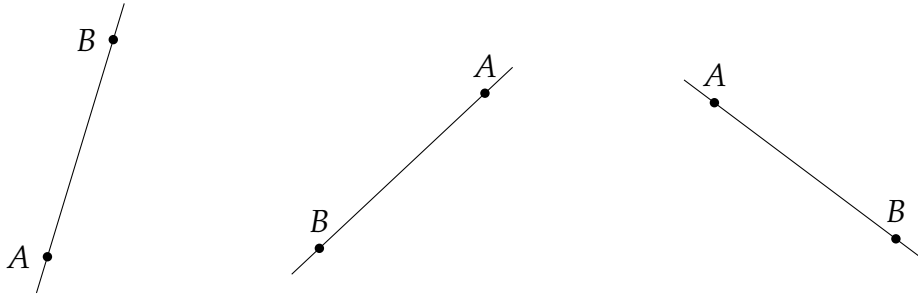
**3.** Use primes to label the figure in a logical way.

**4.** These triangles are congruent. Label them using the classical method. Use primes. Write down relationships between angles and sides.

**5.** Copy these segments using ruler and compass. Don't erase your construction lines and arcs. Label your answer.

**6.**

**7.** 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?

**8.** 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.

**9.** 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.

**10.** Prove the parallelogram area formula using $SAS$.

**11.** Prove the paralellogram area formula using $AAS$.

**12.** Prove the parallelogram area formula using $ASA$.