Some problems. Do, or do not. There is no try.

1. Prove that SAS is sufficient to prove two triangles are similar. That is, if $\angle CAB \cong \angle FDE$ and $|AB|/|DE| = |AC|/|DF|$, then $\triangle ABC$ is similar to $\triangle DEF$.

2. If S is a similarity with ratio s and R is a similarity with ration r, prove that the transformation $S \circ R$ is a similarity with ratio rs, and that S^{-1} is a similarity with ratio $1/s$.

3. Let A be a point outside a given circle, and let two secants through A intersect the circle at points B, C, D, and E, such that D lies between A and C, and E lies between A and B. Proce that $\triangle ABC \sim \triangle ADE$.

4. Let $\overline{AB}$ and $\overline{CD}$ be two chords in a circle which intersect at a point X. Suppose that $|AX| = 2$, $|XB| = 3$, and $|CX| = 1$. Find the length of $|DX|$. Justify your answer.