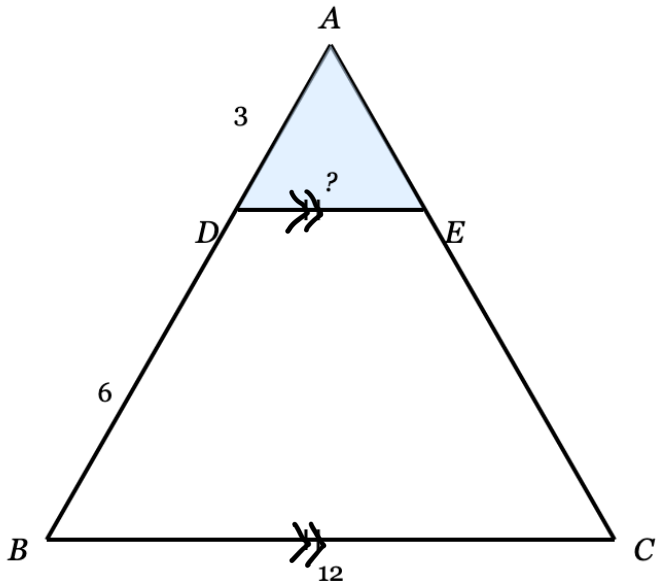
Applications of Similar Figures

1. Consider the diagram shown at right.



   a) Justify that $\triangle ADE \sim \triangle ABC$.

      Use a table to organize which angles are equal and state why in each case.

   b) If $\triangle ADE \sim \triangle ABC$, write the ratios of corresponding side lengths.

   c) Now find the length of DE.

2. A lamp post is 4 m tall. A student who is 1.6 m tall stands 3 m from the base of the post. A light ray from the top of the post passes over the student's head and meets the ground at S, the tip of the shadow. Let s be the length of the shadow in metres.

   Let F mark the point where the student's feet meet the group. Let H mark the top of the student's head. Let P mark the point where the lamppost meets the ground. Let L mark the top of the lamppost.

   a) Draw a diagram of this situation.

   b) Why is $\triangle LPS \sim \triangle HFS$? Justify your response.

   c) Find s, the length of the student's shadow.