

### PROBLEM 7

#### Trigonometry

A parallelogram has sides 6 cm and 12 cm, and an angle measuring  $120^\circ$ , as shown. It is cut along its long diagonal to form two triangles. The triangles are placed so that the sides of length 12 cm are together, forming a new parallelogram, ABCD, as shown. Determine the exact length of the diagonal, AC, of this parallelogram.

