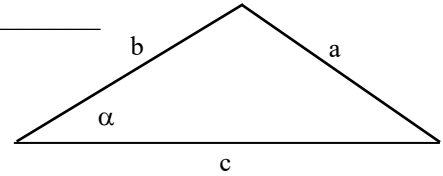


1) Print hardcopy of this sheet. Estimate angle α by eye. α _____

2) Write an equation to determine angle α as a function of lengths a, b and c.



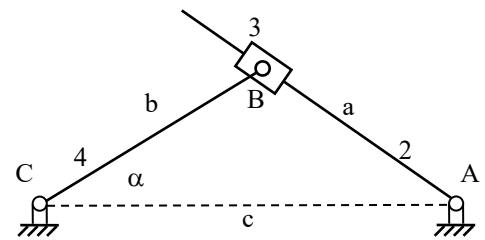
3) Measure a, b and c using mm. a _____ b _____ c _____

4) Compute α using parts 2) and 3) above. α _____

5) Measure α with a protractor. α _____

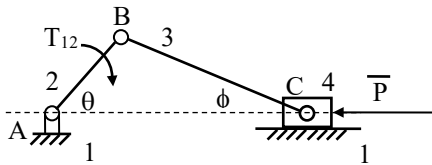
6) Links AC and BC are rigid. Determine $\dot{\alpha}$ when \dot{a} is +10 mm/s at this position. Use link lengths from 3) above.

$\dot{\alpha}$ _____



7) What is this mechanism? _____

8) Draw a **complete** free-body diagram of slider block 4 for static equilibrium including friction.



9) What is this mechanism? _____

10) Complete the matrix multiplication.

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{Bmatrix} 5 \\ 6 \end{Bmatrix} = \begin{Bmatrix} 17 \\ \end{Bmatrix}$$

11) Invert the matrix.

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}^{-1} = \begin{bmatrix} & \\ & \end{bmatrix}$$