Homework 1

Answers should be submitted, as both a tex file and a pdf file, to both me and the teaching assistants. You may use this file as a template.

Q1.1. Starting from

$$z = re^{i\theta} \qquad\qquad (\text{Q1.1.1})$$

calculate

  (a) $\dot{z}$

  (b) $\ddot{z}$

and hence determine the radial and angular components of the velocity $\boldsymbol{v}$ and acceleration $\boldsymbol{a}$ in two dimensions.

Use PGF to draw a diagram illustrating your answer.