Polar Curves - Exercises (1 page; 14/1/20)

Key to difficulty:

* introductory exercise

** light A Level (FM) standard

*** harder A Level (FM) standard

**** harder than A Level (FM)

(1*) Convert the curve $(x-1)^2+y^2=1$ to polar form.

(2***) Convert the curve $r=\frac{2}{1+cos\theta}$ to cartesian form, and sketch the curve, based on its cartesian form.

(3***)(i) Sketch the curve $r=5+4cos\theta$.

(ii) Without converting the curve to cartesian form, find the greatest negative x-coordinate of a point on the curve.

(iii) Determine the area enclosed by the curve.

(4***)(i) Sketch the curve $r^2=sin2\theta$.

(ii) Show how to sketch the curve $r^2=cos2\theta$ by applying a transformation to $r^2=sin2\theta$.

(iii) Find the largest y-coordinate of the curve $r^2=sin2\theta$.