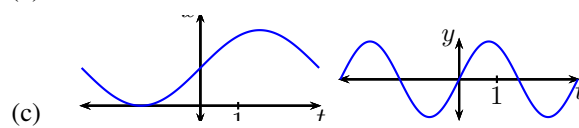
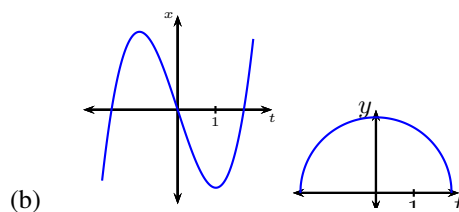
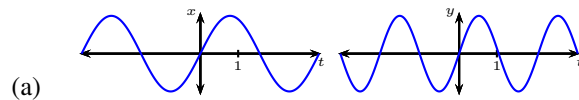
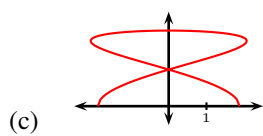
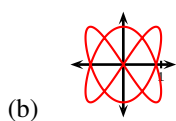
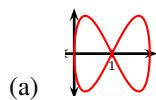


Calculus II

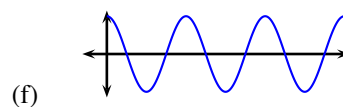
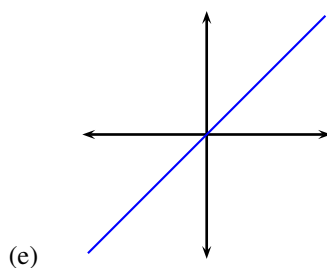
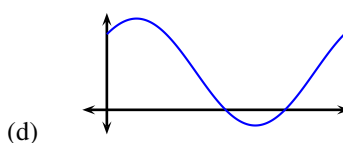
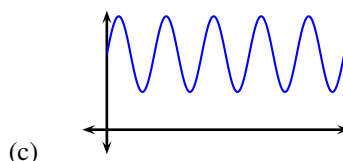
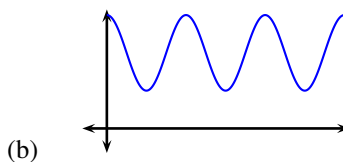
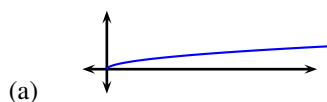
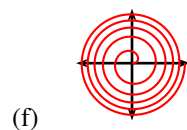
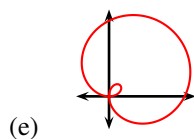
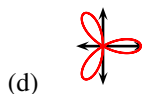
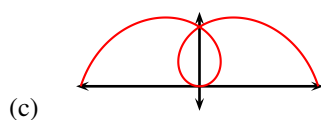
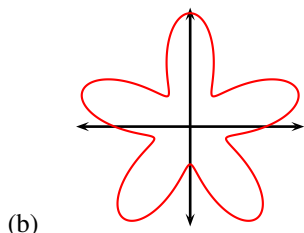
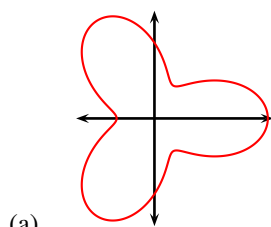
Homework on Lecture 11

1. Match the graphs of the parametric equations $x = f(t)$, $y = g(t)$ with the graph of the parametric curve $\gamma : \begin{cases} x = f(t) \\ y = g(t) \end{cases}$



2.

Match the graph of the curve to its graph in polar coordinates and to its polar parametric equations.



(i) $r = 1 + \sin(\theta) + \cos(\theta)$

(ii) $r = \theta, \theta \in [-\pi, \pi]$

(iii) $r = \cos(3\theta), \theta \in [0, 2\pi]$

(iv) $r = \frac{1}{4}\sqrt{\theta}, \theta \in [0, 10\pi]$

(v) $r = 2 + \sin(5\theta)$

(vi) $r = 2 + \cos(3\theta)$

3.

- Sketch the curve given in polar coordinates by $r = 2 \sin \theta$. What kind of a figure is this curve? Find an equation satisfied by the curve in the (x, y) -coordinates.
- Sketch the curve given in polar coordinates by $r = 4 \cos \theta$. What kind of a figure is this curve? Find an equation satisfied by the curve in the (x, y) -coordinates.
- Sketch the curve given in polar coordinates by $r = 2 \sec \theta$. What kind of a figure is this curve? Find an equation satisfied by the curve in the (x, y) -coordinates.
- Sketch the curve given in polar coordinates by $r = 2 \csc \theta$. What kind of a figure is this curve? Find an equation satisfied by the curve in the (x, y) -coordinates.
- Sketch the curve given in polar coordinates by $r = 2 \sec(\theta + \frac{\pi}{4})$. What kind of a figure is this curve? Find an equation satisfied by the curve in the (x, y) -coordinates.
- Sketch the curve given in polar coordinates by $r = 2 \csc(\theta + \frac{\pi}{6})$. What kind of a figure is this curve? Find an equation satisfied by the curve in the (x, y) -coordinates.