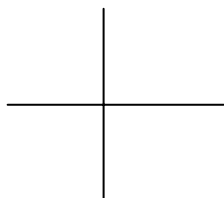


## PARAMETRIC EQUATIONS FOR CIRCLES

Consider variations of the basic parametric equations for a circle. Illustrate the variations given below. Include the starting point and direction.

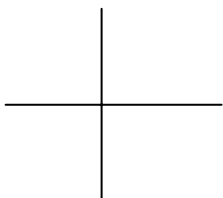
1. 
$$\begin{cases} x = 2 \cos t \\ y = 2 \sin t \end{cases}$$

$$0 \leq t \leq 2\pi$$



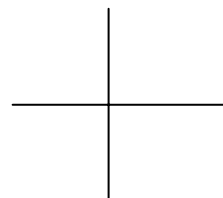
2. 
$$\begin{cases} x = \cos(3t) \\ y = \sin(3t) \end{cases}$$

$$0 \leq t \leq \frac{2\pi}{3}$$



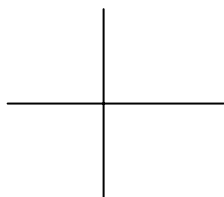
3. 
$$\begin{cases} x = \cos(t+2) \\ y = \sin(t+2) \end{cases}$$

$$0 \leq t \leq 2\pi - 2$$



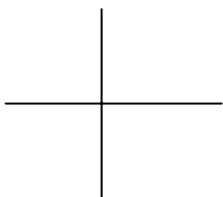
4. 
$$\begin{cases} x = \sin t \\ y = \cos t \end{cases}$$

$$0 \leq t \leq 2\pi$$



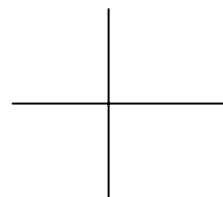
5. 
$$\begin{cases} x = \cos(t^2 - t) \\ y = \sin(t^2 - t) \end{cases}$$

$$0 \leq t \leq 3$$



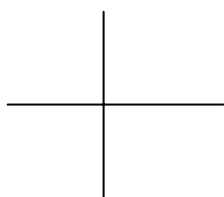
6. 
$$\begin{cases} x = 3 \cos t \\ y = 2 \sin t \end{cases}$$

$$0 \leq t \leq 2\pi$$



7. 
$$\begin{cases} x = \cos(-t) \\ y = \sin(-t) \end{cases}$$

$$0 \leq t \leq 2\pi$$



8. 
$$\begin{cases} x = 3 + \cos t \\ y = -1 + \sin t \end{cases}$$

$$0 \leq t \leq 2\pi$$

