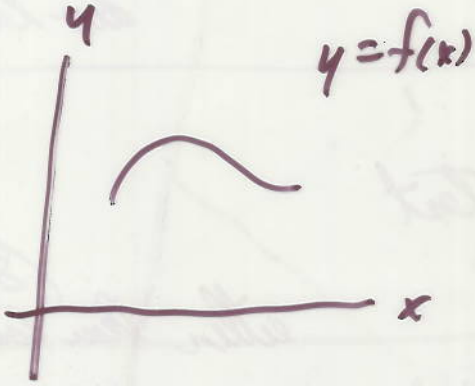
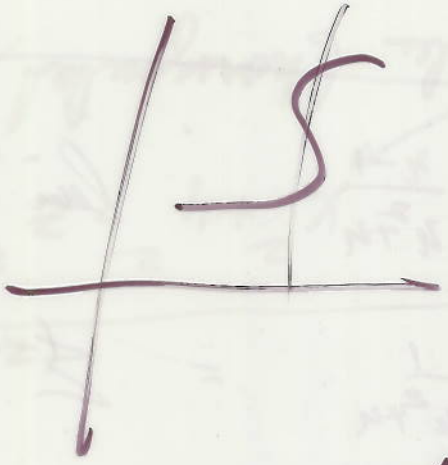
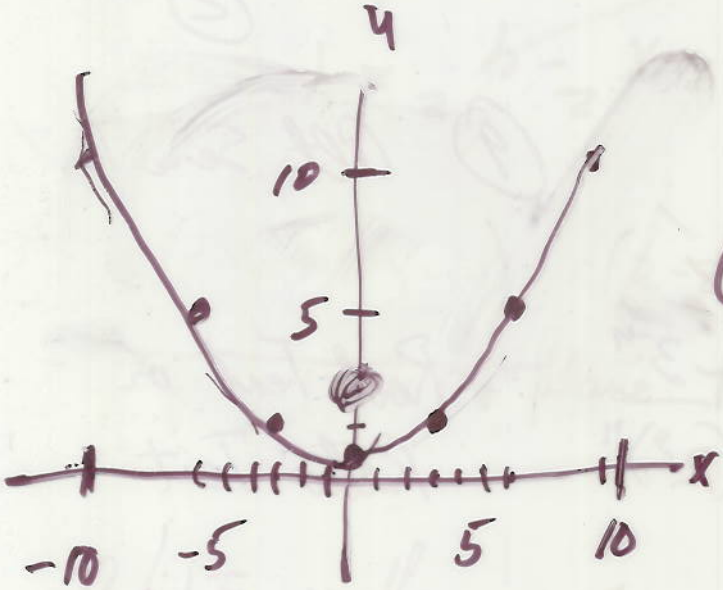
M 192 Lect #12 10-5-11

Chap 11 Parametric Equations (+ Polar Eqns)





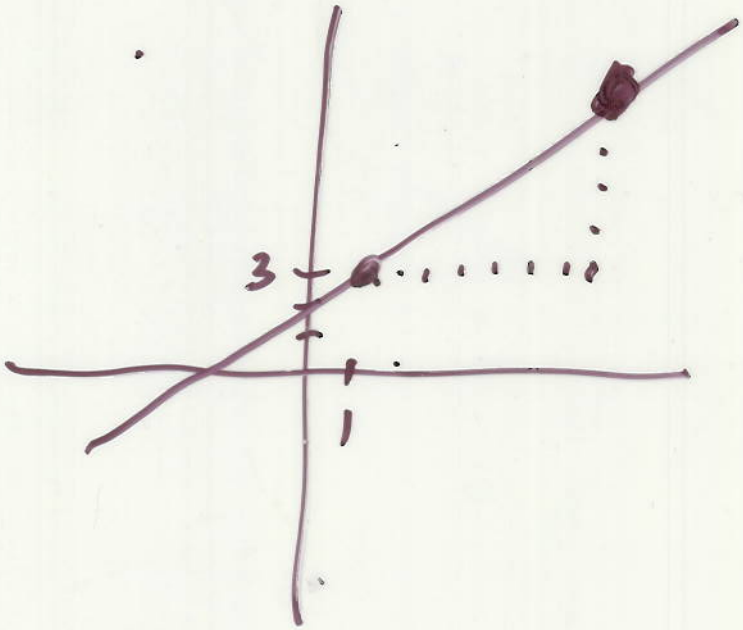


parameter

$$\begin{cases} x = 3t \\ y = t^2 + 1 \end{cases}$$

t	x	y
-3	-9	10
-2	-6	5
-1	-3	2
0	0	1
1	3	2
2	6	5
3	9	10

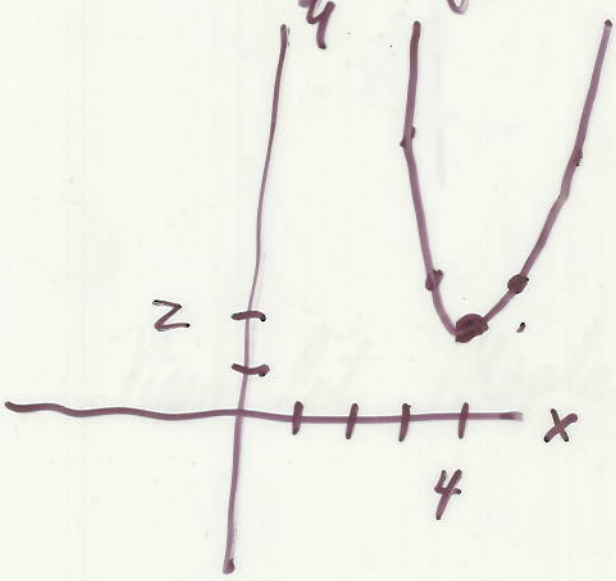
Param eq of a line passing through $(1,3)$ having slope $\frac{5}{7} = \frac{\text{rise}}{\text{run}}$



$$\begin{cases} x = 1 + 7t \\ y = 3 + 5t \end{cases}$$

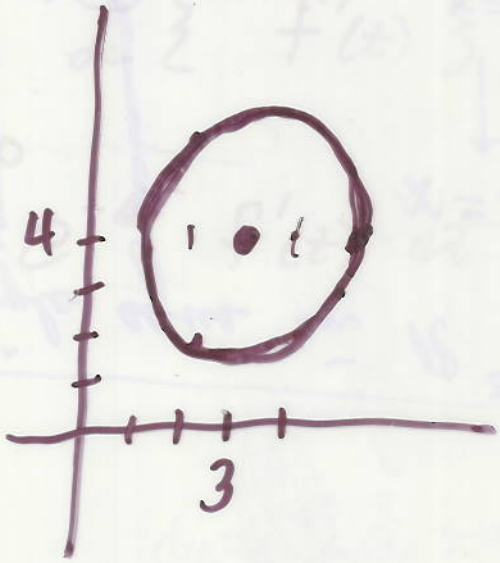
$$\begin{cases} x = x_1 + \text{run}\, t \\ y = y_1 + \text{rise}\, t \end{cases}$$

Param eqn of a nice parabola $y = x^2$

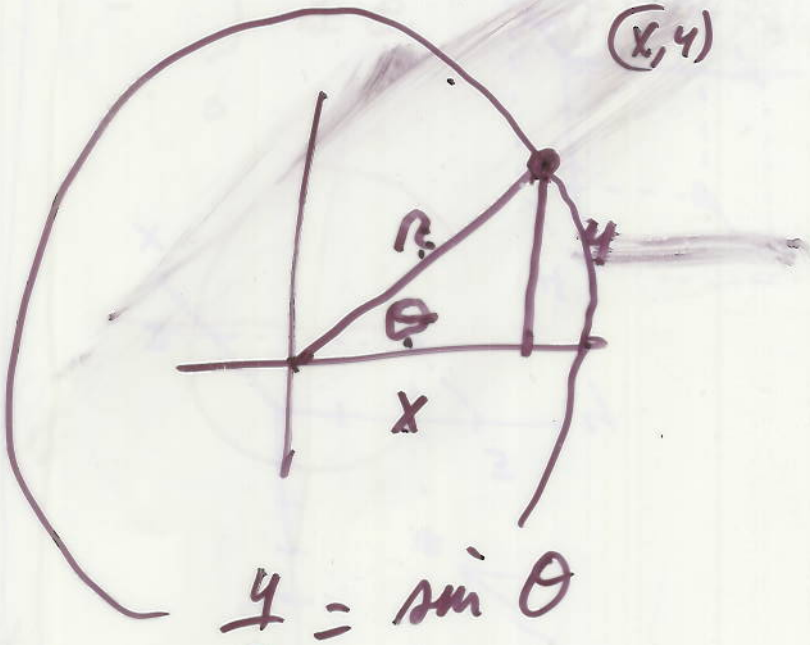


$$\begin{cases} x = 4 + t \\ y = 2 + t^2 \end{cases}$$

Parametric Eqns of a Circle



$$\begin{cases} x = 3 + 2\cos t \\ y = 4 + 2\sin t \end{cases}$$



$$\frac{y}{r} = \sin\theta$$

$$y = r\sin\theta = r\sin t$$

$$x = r\cos\theta = r\cos t$$