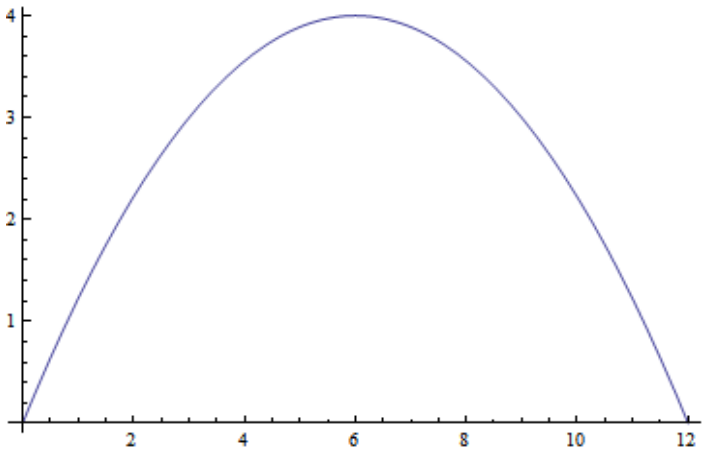
Answer on Question#57162, Physics, Other

I) The velocity at $t=0$ is $v(0)=(3,4)$. The magnitude is $|v(0)|=\sqrt{9+16}=5$.
The velocity vector has angle $\tan\frac{4}{3}$ with ox axis.

II) Suppose that at $t=0$ the position of the body was $(0,0)$. Then, the coordinates of the body are $\vec{x}(t)=(3t,4t-t^2)$. Hence, the body will hit ox axis when $4t-t^2=0$, i.e. at $t=4$.

III) The trajectory is $y(x)=\frac{4}{3}x-\frac{x^2}{9}$, and the shape is a parabola:



IV) The maximum distance along oy axis is found from $y'(t)=4t-t^2=0$, therefore it occurs at $t=2$. Thus, $t(2)=8-4=4$.