"QUIZ" for Lecture 4

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E-MAILSCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q4FirstLast.pdf) ASAP BUT NO LATER THAN Sept. 17, 8:00pm

1. Find a parametric equation for the tangent line to the curve with the given parametric equation at the specified point

$$x = \cos t \quad , \quad y = \sin t \quad , \quad z = t^2 + 1 \quad ; \quad (1, 0, 1)$$

cost0=1, sint0=0, t0^2+1=1
t0=0
r(t)=<cost,sint,t^2+1>
r'(t)=<-sint,cost,2t>
(1,0,1)+t<0,1,0>
=<1,t,1>
x=1,y=t,z=1

2. Find $\mathbf{r}(t)$ if

$$\mathbf{r}'(t) = t\,\mathbf{i} + 2\,\mathbf{j} + (t+1)\,\mathbf{k}$$

and

$$\mathbf{r}(0) = \mathbf{i} + 2\,\mathbf{j} + 3\,\mathbf{k} \quad .$$

r(t)= ∫ (t i+2j+(t+1)k)dt
=(t^2/2)*i+2t*j+((t+1)^2/2)*k+C
r(0)=0i+0j+1/2k+C=i+2j+3k
C=i+2j+(5/2)k
r(t)=(t^2/2)*i+2t*j+((t+1)^2/2)*k+i+2j+(5/2)k
=((t^2/2)+1)i+(2t+2)j+((t+1)^2/2)+5/2)k