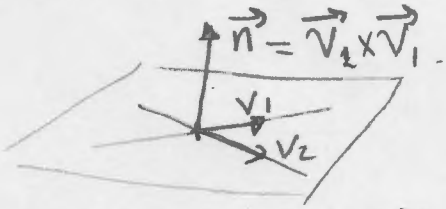
Review Hints

#1 (a) Set $\vec{r}_1(t) = \vec{r}_2(s)$ remember intersecting vs. colliding

(c) Angle between two intersecting lines is the angle between their direction vectors.

(d)

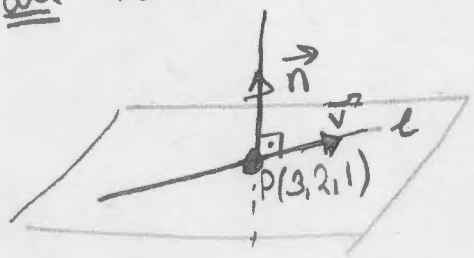


#2 $\vec{T} = \dfrac{\vec{r}\,'}{\|\vec{r}\,'\|}$ $\vec{N} = \dfrac{\vec{T}'}{\|\vec{T}'\|}$ $\vec{B} = \vec{T} \times \vec{N}$

#3 $\vec{r}(t) = \underset{x}{4}\vec{i} + \underset{x}{(3+3t)}\vec{j} + \underset{z}{2t}\vec{k}$ $x+2y+3z=10$

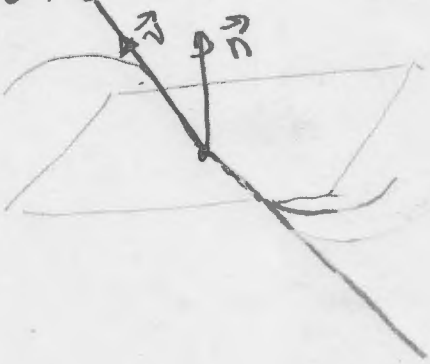
(a) For <u>all</u> values of t

(b)

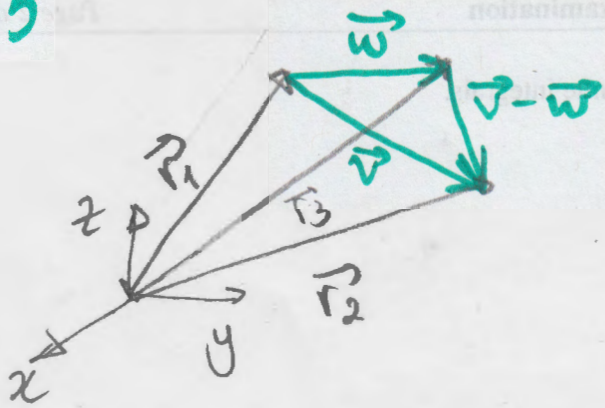


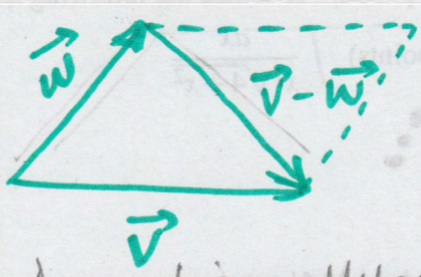
#4 (a) $t + t^2 + 2(t^3) = 4$ $t = ?$ Guess?

(b)



#5

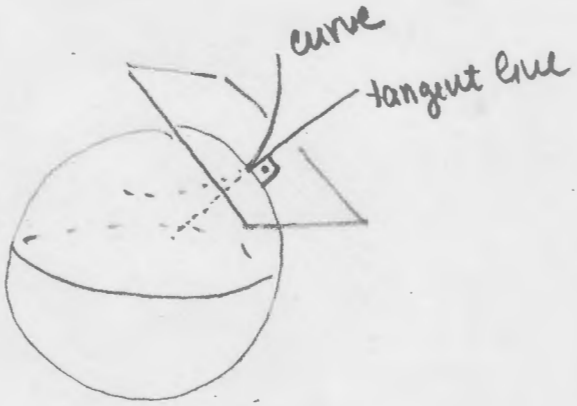




Area of parallelogram?

#6

(a) $(t)^2+(t^2)^2+(t^3)^2=3$, $t=?$



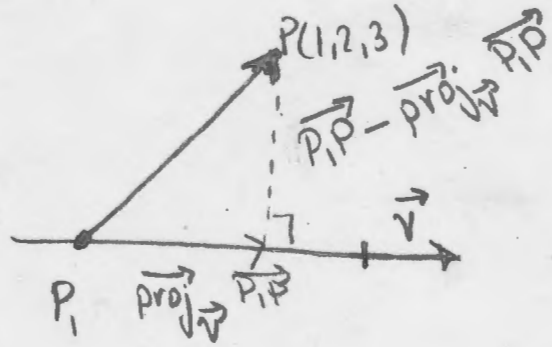
#7

speed $= \|\vec{r}'\|$, $\vec{T} = \dfrac{\vec{r}'}{\|\vec{r}'\|}$, $K = \left\| \dfrac{d\vec{T}}{ds} \right\| = \left\| \dfrac{d\vec{T}/dt}{ds/dt} \right\| \dfrac{\|\vec{T}'\|}{\|\vec{r}'\|}$

definition — chain rule — change of notation — FTC

$$\vec{N} = \frac{\vec{T}'}{\|\vec{T}'\|}$$

#8



OR