$$\frac{A}{\sin\alpha}=\frac{B}{\sin\beta}=\frac{C}{\sin\gamma}$$

$$A=\sqrt{B^2+C^2-2BC\cos\alpha}$$

$$\hat{u}=\frac{\vec{v}}{v}=\cos\theta\,\hat{\imath}+\sin\theta\,\hat{\jmath}$$

$$=\cos\theta_x\,\hat{\imath}+\cos\theta_y\,\hat{\jmath}$$

$$\vec{v}=v_x\hat{\imath}+v_y\hat{\jmath}=v_t\hat{t}+v_n\hat{n}$$

$$v_x=v_t\cos\phi-v_n\sin\phi$$

$$v_y=v_t\sin\phi+v_n\cos\phi$$

$$v_t=v_x\cos\phi+v_y\sin\phi$$

$$v_n=-v_x\sin\phi+v_y\cos\phi$$

$$\vec{v}=v(\cos\theta_x\,\hat{\imath}+\cos\theta_y\,\hat{\jmath}+\cos\theta_z\,\hat{k})$$

$$\cos^2\theta_x+\cos^2\theta_y+\cos^2\theta_z=1$$

$$F_{||}=\vec{F}\cdot\frac{\vec{r}}{r}$$

$$F^2=F_\perp^2+F_{||}^2$$

$$\vec{F}=\vec{F}_\perp+\vec{F}_{||}$$

$$\vec{A}\cdot\vec{B}=A_xB_x+A_yB_y+A_zB_z=A\cos\theta\,B$$

$$\vec{A}\times\vec{B}=\begin{vmatrix}\hat{\imath} & \hat{\jmath} & \hat{k}\\ A_x & A_y & A_z\\ B_x & B_y & B_z\end{vmatrix}=A\sin\theta\,B$$

$$\left(\vec{A}\times\vec{B}\right)\cdot\vec{C}=\begin{vmatrix}C_x & C_y & C_z\\ A_x & A_y & A_z\\ B_x & B_y & B_z\end{vmatrix}$$

$$F_s=k\delta=k(L-L_0)$$

$$\sum F_x\,\hat{\imath}+\sum F_y\,\hat{\jmath}+\sum F_z\,\hat{k}=\vec{0}$$

$$\sum F_r=0:\vec{F}_1\cdot\frac{\vec{r}}{r}+\vec{F}_2\cdot\frac{\vec{r}}{r}+\cdots+\vec{F}_n\cdot\frac{\vec{r}}{r}=0$$