1. Match a curvature symbol to a formula and to the physical/geometric description (see below).
2. Next, which are extrinsic curvatures and which are intrinsic curvatures? Label these.
3. Next, which are vectors and which are scalars? Label these.
4. If the curvature is not already named, what is its name? Label any that aren't already named.
5. Which does this connect with?

$$\frac{1}{(EG-F^2)^2}\left(\begin{vmatrix} -\frac{E_{vv}}{2}+F_{uv}-\frac{G_{uu}}{2} & \frac{E_u}{2} & F_u-\frac{E_v}{2} \\ F_v-\frac{G_u}{2} & E & F \\ \frac{G_v}{2} & F & G \end{vmatrix} - \begin{vmatrix} 0 & \frac{E_v}{2} & \frac{G_u}{2} \\ \frac{E_v}{2} & E & F \\ \frac{G_u}{2} & F & G \end{vmatrix}\right)$$

Curvature symbols:

- κ_1
- κ_2
- K
- H
- κ_α
- κ_n
- κ_g

Formulas:

- $S_p(\vec{w}) = \kappa_1 \vec{w}$
- $\frac{\kappa_1+\kappa_2}{2} = \frac{lG-2mF+nE}{2(EG-F^2)}$
- $\kappa_\alpha - \kappa_n$
- $S_p(\vec{w}) = \kappa_2 \vec{w}$
- $(U \cdot \kappa_\alpha)U$
- $\kappa_1\kappa_2 = \frac{ln-m^2}{EG-F^2} = \frac{|II|}{|I|}$
- $\dfrac{T'(t)}{|\alpha'(t)|}$

Physical/Geometric Descriptions

- curvature vector of a curve
- normal curvature components of a curve
- tangential curvature components of a curve
- maximum normal curvature at a point
- minimum normal curvature at a point
- some measure of how a surface bends at a point with respect to T_pM
- some measure of whether a surface can be a soap bubble