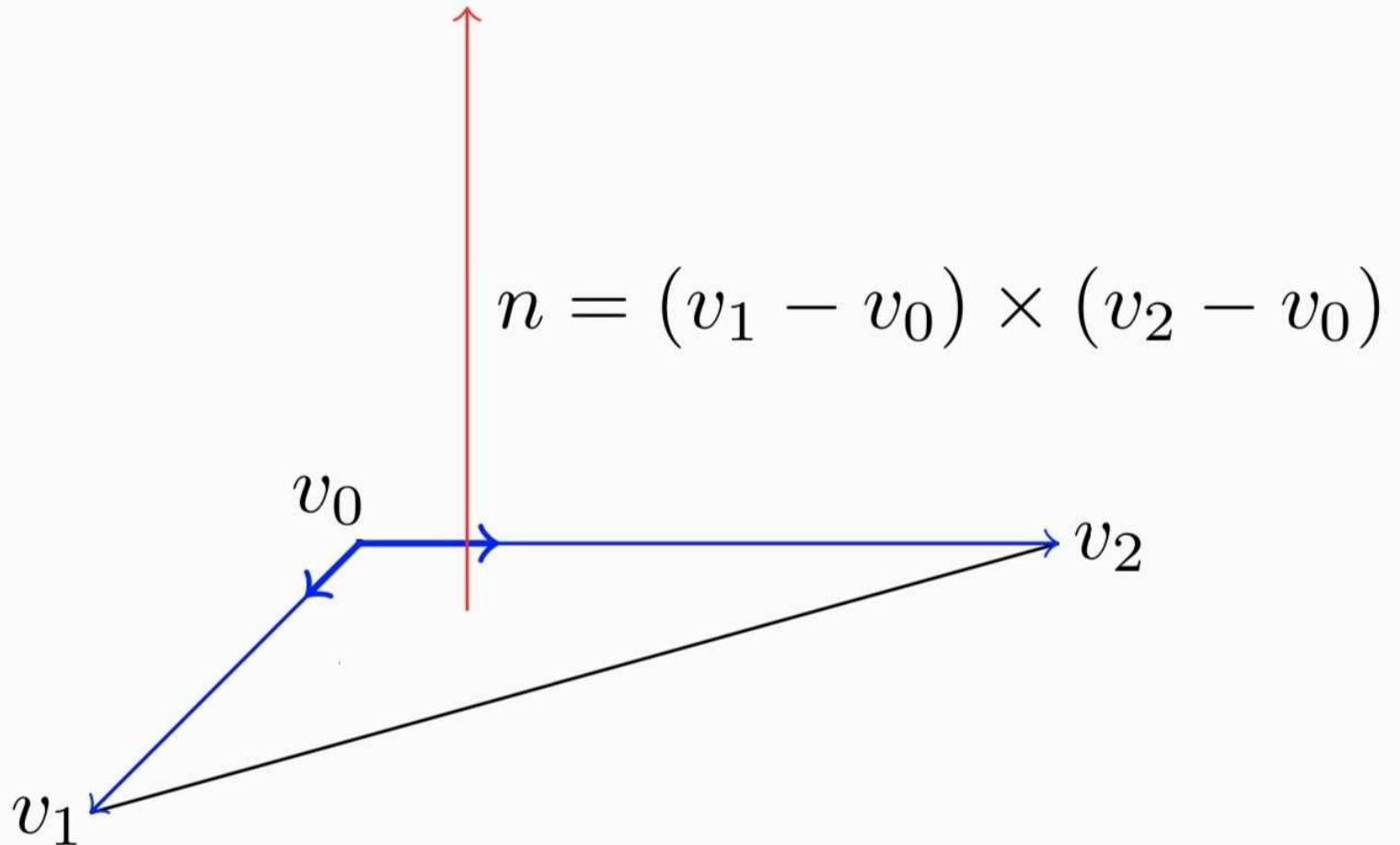


# Calculating Normals - Cross Product

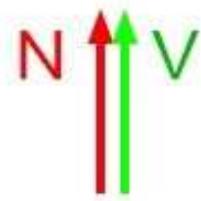


# Calculating Angle-of-Incidence

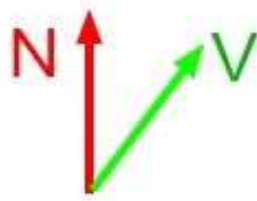
Find dot product of surface normal & vector-to-light

The result tells us the angle between them:

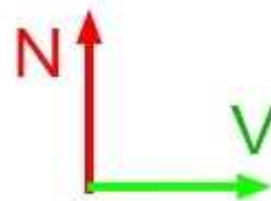
- 1.0 if normal and vector-to-light are parallel
- 0.0 if normal and vector-to-light are perpendicular
- Something in-between if the angle is in-between !
- Less than zero if the normal points away



$$N \cdot V = 1$$



$$0 < N \cdot V < 1$$



$$N \cdot V = 0$$



$$N \cdot V < 0$$

# Normal Warning !

Each surface has two normals !!!

(depending on which side of the coin you consider)

Which one should we use for incident calculations ?

We need to consider the "Vertex Winding Order"...

VertexWinding