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Assignment Nr. 3

3.1 Reflection Rays

In general, the direction of a ray reflected at a normal is

$$d_{ref} = 2(n \cdot d)n - d$$

We have to keep in mind that the ray that is reflected should point in the correct (therefore reversed) direction and that it starts at the new time t_{hit} . therefore the complete formula for the new ray is:

$$r_{ref}(t) = o + t_{hit}d - (t - t_{hit})2(n \cdot d)n - d$$

3.2 Front/Back-side of a triangle

The scalar product is < 0 for angles between two vectors greater than 90° and > 0 for angles between two vectors smaller than 90° .

So the ray hits the triangle from the front, if $n \cdot d > 0$ and it hits it from the back if $n \cdot d < 0$.