Calculating light intensity

I = ambient reflection + diffuse (and specular) reflection at a certain distance

$$\Rightarrow \boxed{I = k_a I_a + \frac{I_p}{d'}\left[k_d(\hat{N}\cdot\hat{L}) + k_s(\hat{R}\cdot\hat{V})^n\right]}$$

I	overall intensity
k_a	ambient reflection coefficient
I_a	intensity of ambient light
I_p	intensity of diffuse light
k_d	diffuse reflection coefficient
d'	distance term, taking to account the inverse square law, it is $d' = k_c + k_l d + k_q d^2$ where d is the distance between light source and object and k_x are parameters for us to adjust/tune the result.
$\hat{N}\cdot\hat{L}$	$\hat{N}$ and $\hat{L}$ describe the surface orientation. $\hat{N}\cdot\hat{L} = \cos(\theta)$ where θ is the angle between light ray and surface (diffusely reflecting).
k_s	specular reflection coefficient
$\hat{R}\cdot\hat{V}$	$(\hat{R}\cdot\hat{V})^n = \cos^n(\phi)$, ϕ is the angle between light ray and specular reflecting surface
n	how shiny the specular reflection is