In[2]:= **ClearAll[ux, ϕ, x, y];**

In[5]:= **ϕ = ((x^2 - y^2) / (x^2 + y^2) * (x^2 + y^2 + R^4 / (x^2 + y^2) - 2 R^2) + x^2 + y^2 - R^2 * Log[x^2 + y^2]) / 4**

Out[5]= $\frac{1}{4} \left(x^2 + y^2 + \frac{(x^2 - y^2) \left(-2\,R^2 + x^2 + y^2 + \frac{R^4}{x^2+y^2} \right)}{x^2 + y^2} - R^2\,\text{Log}[x^2 + y^2] \right)$

In[7]:= **σyy = Simplify[D[ϕ, x, x]]**

Out[7]= $\frac{2\,(x^2 + y^2)^4 + 3\,R^4\,(x^4 - 6\,x^2\,y^2 + y^4) + R^2\,(x^6 + 13\,x^4\,y^2 + 7\,x^2\,y^4 - 5\,y^6)}{2\,(x^2 + y^2)^4}$