

2 potengyatu:

$$\frac{1}{|\vec{R} - \vec{r}|} = \sum_{l=0}^{\infty} A_l P_l(\cos \theta) \quad \text{dla } r < R:$$

$$\frac{1}{|\vec{R} - \vec{r}|} = \frac{1}{R} \frac{1}{\sqrt{1 - 2\frac{r}{R} \cos \theta + \left(\frac{r}{R}\right)^2}} \stackrel{\theta=0}{=} \frac{1}{R} \frac{1}{1 - \frac{r}{R}} = \frac{1}{R} \sum_{l=0}^{\infty} \left(\frac{r}{R}\right)^l P_l(1)$$

$$\Rightarrow A_l = \frac{1}{R} \left(\frac{r}{R}\right)^l \quad \frac{1}{|\vec{R} - \vec{r}|} = \frac{1}{R} \sum_{l=0}^{\infty} \left(\frac{r}{R}\right)^l P_l(\cos \theta)$$