The radius of the lens of the telescope is
\[ R_T = 10 \text{ cm} \]
The radius of the pupil is
\[ R_E = 0.1 \text{ cm} \]

The Light Gathering Power (LGP) is proportional to the area of the lens.

\[
\frac{(LGP)_T}{(LGP)_E} = \frac{\pi R_T^2}{\pi R_E^2} = \frac{R_T^2}{R_E^2} = 10,000
\]

Therefore
\[ (LGP)_T = 10,000 \times (LGP)_E \]