

Answer on question #54959, Physics / Astronomy — Astrophysics

Question When a telescope is pointed to two stars in turn, the received power is $5.3 \cdot 10^{14}$ W and $3.9 \cdot 10^{14}$ W. What is the difference in apparent magnitude of these stars?

Solution From relation of brightness we can find difference in apparent magnitude as

$$m_1 - m_2 = -2.5 \log_{10} \left(\frac{F_1}{F_2} \right) = -2.5 \log_{10} \left(\frac{5.3}{3.9} \right) \approx -0.333$$