Answer on question #54989, Physics / Astronomy — Astrophysics

Question   A galaxy of absolute magnitude of 20 is at a distance of 100 kpc. Would it be visible to the naked eye?

Solution   The apparent magnitude m is connected to absolute one M as

$$m = M + 5((\log_{10} D_L) - 1) = -20 + 5((\log_{10} 100000) - 1) = 0$$

This magnitude is enough to see it with naked eye.