ASTR 597A, Winter 2023
Ivezić & Bellm
Homework #1
Due Tuesday, Jan. 10, 2023

1) Assume u–band sky brightness of 22.5 mag/arcsec^2, effective zenith seeing of 1.0 arcsec, read–out noise of 9 electrons per pixel (gain=1), and compare limiting depth for a 30–sec exposure to that of two coadded 15–sec exposures obtained towards zenith. **Hint:** use results from Table 2 and eq. 6 from ls.st/lop (LSST overview paper).

2) If you used aperture magnitude instead of psf magnitudes to study faint stars in the Milky Way halo, how long should LSST last to reach the same SNR limit as when using psf magnitudes and a 10-year survey?
Hint: read carefully Section 4 in ls.st/LSE–40