$$\text{surface brightness } \sigma \quad \equiv \quad \frac{\text{energy}}{\text{sq.arcsec sec}}$$

$$\textit{or} \quad \frac{\text{photon}}{\text{sq.arcsec sec}}$$

$$\textit{or} \quad \frac{\text{magnitude}}{\text{sq.arcsec}}$$

$$\sigma \quad = \quad \frac{\text{counts from star}}{\text{area}}$$

$$= \quad \frac{1247 \text{ counts per sec}}{9 \text{ sq. arcsec}}$$

$$= \quad 138 \text{ counts per sec per sq. arcsec}$$

$$\text{E5 means} \qquad 5 \quad = \quad 10\left(\frac{a-b}{a}\right)$$

$$\Phi(L)\,dL \quad = \quad \frac{\text{number of galaxies in } [L,\, L+dL]}{V}$$

$$\Phi(M)\,dM \quad = \quad \frac{\text{number of galaxies in } [M,\, M+dM]}{V}$$

$$\mathrm{N_{total}} \quad = \quad \int \Phi(L)\,dL$$

$$= \quad \int \Phi(M)\,dM$$

$$\Phi(L) \quad = \quad \frac{\Phi^*}{L^*}\left(\frac{L}{L^*}\right)^{\alpha} e^{-L/L^*}$$