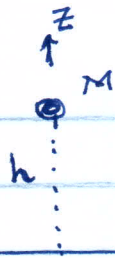


5-16)



Sheet is in this
x-y plane

Clearly $F_x = F_y = 0$ (symmetry).

$$\begin{aligned} F_z &= GM \int_0^{\infty} \frac{(2\pi r dr) \rho_s \cdot h}{h^2 + r^2} \frac{1}{\sqrt{h^2 + r^2}} = \pi GM \rho_s h \int_0^{\infty} \frac{d(r^2)}{(h^2 + r^2)^{3/2}} \\ &= \pi GM h \rho_s \left. \frac{(-2)}{\sqrt{h^2 + r^2}} \right|_{r^2=0}^{r^2=\infty} = 2\pi GM \rho_s \text{ (independent of } h). \end{aligned}$$