Table 2.1 Formulae for the dimensionless quantities $I \equiv a_2 a_3 a_1^{-1} \int_0^\infty \mathrm{d}\tau\, \Delta^{-1}$ and $A_i \equiv a_1 a_2 a_3 \int_0^\infty \mathrm{d}\tau\, \Delta^{-1}(a_i^2+\tau)^{-1}$ that oc
equations (2.128) and Table 2.2. $\Delta^2(\tau) \equiv \prod_{i=1}^{3}(a_i^2+\tau)$. The functions $F(\theta,k)$ and $E(\theta,k)$ are elliptic integrals (Appendix C.4)

	$a_1 = a_2 > a_3$ (oblate)	$a_1 = a_2 < a_3$ (prolate)	$a_1 > a_2 > a_3$ (triaxial)
	$e \equiv \sqrt{1 - a_3^2/a_1^2}$	$e \equiv \sqrt{1 - a_1^2/a_3^2}$	$k \equiv \sqrt{\dfrac{a_1^2 - a_2^2}{a_1^2 - a_3^2}}\ ;\ k'^2 \equiv 1 - k^2\ ;\ \theta \equiv \cos^{-1}\left(\dfrac{a_3}{a_1}\right)$
I	$2\dfrac{\sqrt{1-e^2}}{e}\sin^{-1} e$	$\dfrac{1}{e}\ln\left(\dfrac{1+e}{1-e}\right)$	$2\dfrac{a_2 a_3}{a_1^2}\dfrac{F(\theta,k)}{\sin\theta}$
A_1	$\dfrac{\sqrt{1-e^2}}{e^2}\left[\dfrac{\sin^{-1} e}{e} - \sqrt{1-e^2}\right]$	$\dfrac{1-e^2}{e^2}\left[\dfrac{1}{1-e^2} - \dfrac{1}{2e}\ln\left(\dfrac{1+e}{1-e}\right)\right]$	$2\dfrac{a_2 a_3}{a_1^2}\dfrac{F(\theta,k) - E(\theta,k)}{k^2 \sin^3\theta}$
A_2	$= A_1$	$= A_1$	$2\dfrac{a_2 a_3}{a_1^2}\dfrac{E(\theta,k) - k'^2 F(\theta,k) - (a_3/a_2)k^2\sin\theta}{k^2 k'^2 \sin^3\theta}$
A_3	$2\dfrac{\sqrt{1-e^2}}{e^2}\left[\dfrac{1}{\sqrt{1-e^2}} - \dfrac{\sin^{-1} e}{e}\right]$	$2\dfrac{1-e^2}{e^2}\left[\dfrac{1}{2e}\ln\left(\dfrac{1+e}{1-e}\right) - 1\right]$	$2\dfrac{a_2 a_3}{a_1^2}\dfrac{(a_2/a_3)\sin\theta - E(\theta,k)}{k'^2 \sin^3\theta}$

Table 2.2 Potentials and potential-energy tensors of ellipsoidal bodies

Thin shell	$\Phi(\mathbf{x}_{\rm int}) = -\dfrac{G a_1}{2 a_2 a_3} I(\mathbf{a}) M_{\rm shell}$	$\Phi(\mathbf{x}_{\rm ext}) = -\dfrac{G a_1'}{2 a_2' a_3'} I(\mathbf{a}') M_{\rm shell}$	
Homogeneous	$\Phi(\mathbf{x}_{\rm int}) = -\pi G \rho [I(\mathbf{a}) a_1^2 - \sum_{i=1}^3 A_i(\mathbf{a}) x_i^2]$	$W_{ij} = -\frac{8}{15}\pi^2 G \rho^2 a_1 a_2 a_3 A_i a_i^2 \delta_{ij}$	
	$\Phi(\mathbf{x}_{\rm ext}) = -\pi G \rho \dfrac{a_1 a_2 a_3}{a_1' a_2' a_3'} [I(\mathbf{a}') a_1'^2 - \sum_{i=1}^3 A_i(\mathbf{a}') x_i^2]$	$W = -\frac{8}{15}\pi^2 G \rho^2 a_1^3 a_2 a_3 I$	
Inhomogeneous	$\Phi(\mathbf{x}) = -\pi G \dfrac{a_2 a_3}{a_1}\displaystyle\int_0^\infty \dfrac{\mathrm{d}\tau}{\Delta}\{\psi(\infty) - \psi[m(\tau,\mathbf{x})]\}$	$W_{ij} = -2\pi^2 G \dfrac{a_2 a_3}{a_1^4}\mathcal{S} A_i a_i^2 \delta_{ij}$	$W = -2\pi^2 G \dfrac{a_2 a_3}{a_1^2}\mathcal{S}$

NOTES: I and A_i as in Table 2.1. $\mathbf{x}_{\rm int}$ and $\mathbf{x}_{\rm ext}$ denote points on the interior or exterior of the ellipsoidal shell or boo
$\sum_{i=1}^3 x_i^2/[a_i^2 + \lambda(\mathbf{x})] = 1$, then $a_i'^2 \equiv a_i^2 + \lambda(\mathbf{x})$; $\Delta^2(\tau) \equiv \prod_{i=1}^3 (a_i^2+\tau)$; $m^2(\tau,\mathbf{x}) \equiv a_1^2 \sum_{i=1}^3 x_i^2/(a_i^2+\tau)$; $\psi(m) \equiv \int_0^{m^2} \rho(\mathbf{x}) \mathrm{d}m^2$
$\mathcal{S} \equiv \int_0^\infty \mathrm{d}m^2 \rho(m^2) \int_0^{m^2} \mathrm{d}m'^2\, m' \rho(m'^2) = \frac{1}{2}\int_0^\infty \mathrm{d}m\, [\psi(\infty) - \psi(m)]^2$.