Quantity	Symbol, equation	Value	Reference, foot
Planck mass	$\sqrt{\hbar c/G_N}$	$1.22090(9) \times 10^{19}$ GeV/c^2	[3]
Planck length	$\sqrt{\hbar G_N/c^3}$	$1.61624(12) \times 10^{-35}$ m	[3]
Hubble length	c/H_0	$\sim 1.2 \times 10^{26}$ m	[43]
		$= 2.17645(16) \times 10^{-8}$ kg	
parsec (1 AU/1 arc sec)	pc	$3.085\,677\,580\,7(4) \times 10^{16}$ m $= 3.262\ldots$ly	[10]
light year (deprecated unit)	ly	$0.306\,6\ldots$ pc $= 0.946\,1\ldots \times 10^{16}$ m	
Schwarzschild radius of the Sun	$2G_N M_\odot/c^2$	$2.953\,250\,08$ km	[11]
solar mass	$M_\odot$	$1.988\,44(30) \times 10^{30}$ kg	[12]
solar equatorial radius	$R_\odot$	6.961×10^8 m	[8]
solar luminosity	$L_\odot$	$(3.846 \pm 0.008) \times 10^{26}$ W	[13]
Schwarzschild radius of the Earth	$2G_N M_\oplus/c^2$	$8.870\,056\,22$ mm	[14]
Earth mass	$M_\oplus$	$5.972\,3(9) \times 10^{24}$ kg	[15]
Earth mean equatorial radius	$R_\oplus$	$6.378\,140 \times 10^6$ m	[8]
luminosity conversion	L	$3.02 \times 10^{28} \times 10^{-0.4\,M_{\rm bol}}$ W ($M_{\rm bol}$ = absolute bolometric magnitude = bolometric magnitude at 10 pc	[16]
flux conversion	$\mathscr{F}$	$2.52 \times 10^{-8} \times 10^{-0.4\,m_{\rm bol}}$ W m^{-2} ($m_{\rm bol}$ = apparent bolometric magnitude)	from ab
$v_\odot$ around center of Galaxy	$\Theta_\circ$	$220(20)$ km s^{-1}	[17]
solar distance from galactic center	$R_\circ$	$8.0(5)$ kpc	[18]
local disk density	$\rho_{\rm disk}$	3–12 $\times 10^{-24}$ g cm^{-3} $\approx$ 2–7 GeV/c^2 cm^{-3}	[22]
local halo density	$\rho_{\rm halo}$	2–13 $\times 10^{-25}$ g cm^{-3} $\approx$ 0.1–0.7 GeV/c^2cm^{-3}	[23]
present day Hubble expansion rate	H_0	$100\ h$ km s^{-1} Mpc^{-1}	
		$= h \times (9.778\,13\ \mathrm{Gyr})^{-1}$	[19]
present day normalized Hubble expansion rate	h	$0.71^{+0.04}_{-0.03}$	[42]
critical density of the universe	$\rho_c = 3H_0^2/8\pi G_N$	$2.775\,366\,27 \times 10^{11}\ h^2\ M_\odot$Mpc^{-3}	
		$= 1.878\,37(28) \times 10^{-29}\ h^2$ g cm^{-3}	
		$= 1.053\,69(16) \times 10^{-5}\ h^2$ GeV cm^{-3}	derived
pressureless matter density of the universe	$\Omega_m \equiv\ \rho_m/\rho_c$	$0.135^{+0.008}_{0.009}/h^2 = 0.27 \pm 0.004$	[42]
baryon density of the universe	$\Omega_b \equiv\ \rho_b/\rho_c$	$0.0224 \pm 0.0009/h^2 = 0.044 \pm 0.004$	[42]
dark matter density of the universe	$\Omega_{DM} \equiv\ \Omega_m - \Omega_b$	$0.113^{+0.008}_{-0.009}/h^2 = 0.22 \pm 0.04$	[44]
radiation density of the universe	$\Omega_\gamma = \rho_\gamma - \rho_c$	$(2.471 \pm 0.004) \times 10^{-5}/h^2 = (4.9 \pm 0.5) \times 10^{-5}$	[46]
neutrino density of the universe	Ω_ν	$< (0.0076/h^2 = 0.015)$, 95% C.L.	[42]
dark energy density	Ω_Λ	0.73 ± 0.04	[42]
total energy density	$\Omega_{\rm tot} = \Omega_m + \ldots + \Omega_\Lambda$	1.02 ± 0.02	[42]
number density of baryons	n_b	$(2.5 \pm 0.1) \times 10^{-7}$/cm^3	[42]
number density of CMB photons	n_γ	410.4 ± 0.5cm^{-3}	[47]
baryon-to-photon ratio	$\eta = n_b/n_\gamma$	$(6.1 \pm 0.2) \times 10^{-10}$	derived
scale factor for cosmological constant	$c^2/3H_0^2$	$2.853 \times 10^{51}\ h^{-2}$ m^2	
dark energy equation of state	w	< -0.78 at 95% C.L.	[42, 48]
fluctuation amplitude at $8h^{-1}$ Mpc scale	σ_8	0.84 ± 0.04	[42]
scalar spectral index at $k_0 = 0.05$ Mpc^{-1}	n_s	0.93 ± 0.03	[42]

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Printing Office, Washington, and Her Majesty's Stationary
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9. JPL Planetary Ephemerides, E. Myles Standish, Jr., p
communication (1989).

10. 1 AU divided by $\pi/648\,000$; quoted error is from the
Planetary Ephemerides value of the AU [9].

11. Product of $2/c^2$ and the heliocentric gravitational consta
The given 9-place accuracy seems consistent with uncerta
defining the earth's orbital parameters.

12. Obtained from the heliocentric gravitational constant [8
G_N [3]. The error is the 150 ppm standard deviation of G

13. 1996 mean total solar irradiance (TSI) = 1367.5 ± 2.7 [3
solar luminosity is $4\pi \times (1\,\mathrm{AU})^2$ times this quantity. Thi
increased by 0.036% between the minima of solar cycles
22. It was modulated with an amplitude of 0.039% durin
cycle 21 [32].

Sackmann *et al.* [33] use TSI = 1370 ± 2 W m^{-2}, but c
that the solar luminosity ($L_\odot = 3.853 \times 10^{26}$ J s^{-1}) h
uncertainty of 1.5%. Their value comes from three 197
papers, and they comment that the error is based on s
among the reported values, which is substantially in exc
that expected from the individual quoted errors.

The conclusion of the 1971 review by Thekaekara
Drummond [34] ($1353 \pm 1\%$ W m^{-2}) is often quoted [35
conversion to luminosity is not given in the Thekaekara
Drummond paper, and we cannot exactly reproduce the
luminosity given in Ref. 35.

Finally, a value based on the 1954 spectral curve du
Johnson [36] ($1395 \pm 1\%$ W m^{-2}, or $L_\odot = 3.92 \times 10^{26}$
has been used widely, and may be the basis for the highe
of the solar luminosity and the corresponding lower value
solar absolute bolometric magnitude (4.72) still common
literature [16].

14. Product of $2/c^2$, the heliocentric gravitational constant
Ref. 7, and the earth/sun mass ratio, also from Ref. 7. Tl
9-place accuracy appears to be consistent with uncertain
actually defining the earth's orbital parameters.

15. Obtained from the geocentric gravitational constant [8]
G_N [3]. The error is the 150 ppm standard deviation of G

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and $\Theta_\circ = 220 \pm 20$ km s^{-1}] were adopted by resolution
Commission 33 on 1985 November 21 at Delhi".

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Note that $\Theta_\circ$ from the 1985 IAU Commission 33 recommen
is adopted in this review, although the new value for $R_\circ$ is

19. Conversion using length of tropical year.

20. M. Fukugita and C.J. Hogan, "Global Cosmological Para
H_0, Ω_M, and Λ," Sec. 20 of this *Review*.

21. The final uncertainty arises from dichotomous estimates
distance to the Large Magellanic Cloud.

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and Ω_k[41]. Thus $\Omega_{\rm tot} = 1$ indicates a flat universe.

27. Recent results from both BOOMERANG [37] and MAXIMA-1 [38] indicate $\Omega_M + \Omega_\Lambda \approx 1$ with $\approx 10\%$ uncertainties, providing the strongest evidence to date for a flat universe. See discussions elsewhere in this *Review* concerning the remarkable consistency of Ω_M and Ω_Λ measurements by different methods [20,29,39].
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46. $\rho_\gamma = \frac{\pi^2}{15}\frac{(k_B T)^4}{(\hbar c)^3}$, using T_0 from Ref. 45.
47. $n_\gamma = \frac{2\zeta(3)}{\pi^2}(\frac{k_B T}{\hbar c})^3$, using T_0 from Ref. 45.
48. Note that one of the priors assumed when deriving this parameter is $w \geq -1$.
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