TABLE 1.2 Notations and conventions for four-vectors and the metric

Contravariant four-vector	$A^\mu = (A^0, \vec{A}), \qquad x^\mu = (t, \vec{x})$
Covariant four-vector	$A_\mu = g_{\mu\nu} A^\nu = (A^0, -\vec{A}), \qquad x_\mu = (t, -\vec{x})$
Metric	$g_{\mu\nu} = g^{\mu\nu} = \mathrm{diag}(1, -1, -1, -1)$
	$g_\mu^\nu \equiv g^{\nu\sigma} g_{\mu\sigma} = \delta_\mu^\nu = \begin{cases} 1, & \mu = \nu \\ 0, & \mu \neq \nu \end{cases}$
Lorentz invariant	$A \cdot B \equiv A_\mu B^\mu = g_{\mu\nu} A^\mu B^\nu = A^0 B^0 - \vec{A} \cdot \vec{B}$
Derivatives	$\partial_\mu \equiv \frac{\partial}{\partial x^\mu} = \left(\frac{\partial}{\partial t}, \vec{\nabla} \right), \quad \partial^\mu \equiv \frac{\partial}{\partial x_\mu} = \left(\frac{\partial}{\partial t}, -\vec{\nabla} \right)$
	$\Box \equiv \partial_\mu \partial^\mu = \frac{\partial^2}{\partial t^2} - \vec{\nabla}^2$
	$\partial \cdot A = \partial_\mu A^\mu = \frac{\partial A^0}{\partial t} + \vec{\nabla} \cdot \vec{A}$
	$a \overleftrightarrow{\partial}^\mu b = a\, \partial^\mu b - (\partial^\mu a)\, b$
Antisymmetric tensor	$\epsilon^{\mu\nu\rho\sigma}$, with $\epsilon_{0123} = +1$ and $\epsilon^{0123} = -1$
Contractions	$\epsilon^{\mu\nu\rho\sigma} \epsilon_{\mu\nu\rho\sigma} = -24 \qquad \epsilon^{\mu\nu\rho\sigma} \epsilon_{\mu\nu\rho\tau} = -6 g_\tau^\sigma$
	$\epsilon^{\mu\nu\rho\sigma} \epsilon_{\mu\nu\tau\omega} = -2\, (g_\tau^\rho g_\omega^\sigma - g_\omega^\rho g_\tau^\sigma)$