# Homework problems #5

1. Construct the inverse of the kinetic operator for the massless graviton

$$K_{\mu\nu;\lambda\sigma} = \frac{1}{2} \left[ \eta_{\mu\lambda}\eta_{\nu\sigma} + \eta_{\mu\sigma}\eta_{\nu\lambda} - \eta_{\mu\nu}\eta_{\lambda\sigma} \right] (-\Box)$$

2. Construct the inverse of the kinetic operator for the massive graviton

$$K_{\mu\nu;\alpha\beta} = (\eta_{\mu\alpha}\eta_{\nu\beta} - \eta_{\mu\nu}\eta_{\alpha\beta})(-\Box) - \eta_{\mu\nu}\partial_\alpha\partial_\beta - \eta_{\alpha\beta}\partial_\mu\partial_\nu + \eta_{\mu\alpha}\partial_\nu\partial_\beta + \eta_{\nu\beta}\partial_\mu\partial_\alpha - m^2(\eta_{\mu\alpha}\eta_{\nu\beta} - \eta_{\mu\nu}\eta_{\alpha\beta})$$