

3. Using parallax and trigonometry, show that the value of one parsec is expressed in meters as

$$1 \text{ pc} = 3.09 \times 10^{16} \text{ m.} \quad (7)$$

4. Using natural units, express the following quantities in GeV units:

- (a) One megaparsec: 1 Mpc
- (b) Newton gravitational constant:  $G$
- (c) Planck mass:  $m_{\text{Pl}}$
- (d) Solar mass:  $M_{\odot}$