

Physics 3002, Problem Set 7, due 4/1/09
Lam Hui

Ryden's equation 3.19 shows an alternative form for (the spatial part of) the Robertson Walker metric. Show that this follows from the usual form for the metric (Ryden's equations 3.16 - 3.18) by switching the coordinate from r to $x \equiv S(r)$ as described in Ryden (but keeping the angular coordinates the same). Don't confuse x here with the usual x of Cartesian coordinates. Note that Ryden's κ is either -1 , 0 or 1 ; you would need to treat each case separately.