Riemannian Geometry, Hints 7

7.1 Compute in coordinates (using linearity of directional derivative and Leibniz rule).

7.2 Write the metric as a diagonal matrix and use the formula
$\Gamma_{ij}^k = \frac{1}{2} \sum_m g^{km}(g_{im,j} + g_{jm,i} - g_{ij,m})$.

7.3 As in 7.2, the metric (in the given coordinates) is diagonal, so many of Γ_{ij}^k will be zero.