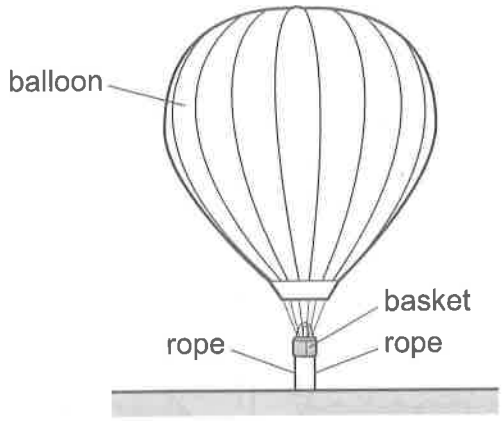
8 A hot-air balloon is tied to the ground by two ropes, as shown.



The balloon is filled with hot air at 120 °C. The ropes are in tension and vertical.

The atmospheric air temperature is 20 °C.

mass of basket and balloon (not inflated) = 700 kg

volume of balloon when filled with hot air = 2800 m^3

density of air at 20 °C = 1.204 kg m^{-3}

density of air at 120 °C = 0.898 kg m^{-3}

What is the magnitude of the tension force in each rope when the balloon is filled with hot air?

A 0.770 kN **B** 1.54 kN **C** 7.62 kN **D** 13.1 kN

9 At a particular time, the driving force applied by the driving wheels of a car is 1.6 kN. This force