MAT132, Paper Homework 2

1. Calculate the indefinite integral $\int \dfrac{2x}{(x+3)(3x+1)}\,dx$.

2. Melissa has moved to Australia to become an emu rancher. She has acquired a square plot of land 1 km by 1 km, with an emu house located at the center of the southern edge. The emus are outfitted with special tracking devices that must remain no more than 1 km from the emu house, so the northern border of the ranch has a fence which is part of a circle. Calculate the area within the fence.