5. Let $C$ be the segment of the parabola $y = x^2$, with $x \in [1, 2]$. Calculate

$$
\int_C x \, ds.
$$

6. Calculate the following two one-variable integrals (the integrands are non-negative):

a) $\int_{-1}^{1} x^2 \, dx$,      
   b) $\int_{-1}^{1} x^{-2} \, dx$.  