Integral applications #1

1. Find the average value of each of the functions below on the interval $\left[0, \frac{1}{2}\right]$. Use a graphing utility to sketch a graph of each of the function on this interval.

    (a) $f(x) = 1/\sqrt{1-x}$

    (b) $f(x) = 1/\sqrt{1-x^2}$

2. Sketch the region enclosed by the given curves. Use an integral to find the area enclosed.

(a) $y = x$, $y = x^2$

(b) $y = x^2 - 2x$, $y = x + 4$