1. (8 pts) Evaluate the integral by interpreting it in terms of areas.

(a) $\displaystyle\int_{-1}^{1} 2|x|dx$

(b) $\displaystyle\int_{0}^{2} \left(\sqrt{4 - x^2} + 2\right)dx$

2. (8 pts) Evaluate the integral.

(a) $\displaystyle\int_{0}^{1} 6x(1 + x^2)dx$

(b) $\displaystyle\int_{1}^{4} \frac{\sqrt{x} - 4}{x^2}dx$

3. A particle moves along a line so that its velocity at time t is $v(t) = 2\cos t - 1$ (m/s).
(a) (4 pts) Find the displacement of the particle during the time period $0 \le t \le \pi$.
(b) (Bonus, 2 pts) Find the distance traveled during the time period $0 \le t \le \pi$.