1. (1.5+1.5=3 points) Suppose
\[ \int_1^3 f(x)dx = 7 \quad \int_2^4 f(x)dx = 13 \quad \int_2^3 f(x) = 5. \]
Compute the following
\[ a) \int_1^4 f(x)dx \]
\[ b) \int_3^4 (f(x) + 2)dx - \int_1^2 (4f(x) - 1)dx. \]

2. (3 points) Suppose a particle has acceleration \( a(t) = 6t \) m/s\(^2\), initial velocity \( v(0) = 3 \) m/s, and initial position \( x(0) = 0 \). Find the position of the particle at time \( t \).
3. (4 points) Find the Upper and Lower sum for $f(x) = \cos x + 1$ on $[-\pi, \pi]$ using $n = 4$ rectangles.