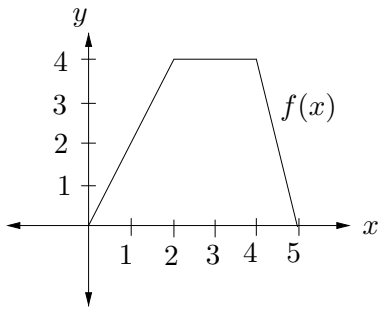
1. (12 points) Let $g(x)$ be a continuous function such that $\int_2^3 g(x)dx = 5$. Let $f(x)$ be given by the following graph:



(a) Find $f'(1)$.

(b) Find $\int_1^2 g(x+1)dx$.

(c) Find the average value of f on the interval $[0, 4]$.

(d) Find $\int_2^3 (f(x) + 3g(x))dx$.

(e) If $G'(x) = g(x)$ and $G(2) = 7$, find $G(3)$.

(f) If $F'(x) = f(x)$, describe two graphical features of F on the interval $0 < x < 1$.