3. [9 points] The graph of $g(t)$ and the areas $A_1$, $A_2$ and $A_3$ between its graph and the $t$ axis are shown below.

Let

$$H(x) = \int_3^{3x} g(t) dt \quad \text{and} \quad F(x) = \int_0^x g(t) dt.$$ 

a. [5 points] Find $H(1)$, $H(2)$ and $H'(3)$.

b. [2 points] For what values of $5 \leq x \leq 10$ is $F(x)$ increasing?

c. [2 points] For what values of $5 \leq x \leq 10$ is $F(x)$ concave up?