3. [10 points] For each of the following compare the two given quantities by writing ">", "<", "=" or "N.I." (for "Not enough information')' in the available answer line. No explanation is necessary.

a. [2 points] Suppose $f(x)$ is continuous and positive.

$$\int_0^1 f(x)dx \quad \_\_\_\_\_ \quad \int_0^1 xf(x^2)dx$$

b. [2 points] Suppose $\displaystyle\int \frac{1}{(x+2)(x-1)}dx = \int \left(\frac{C}{x+2} + \frac{D}{x-1}\right)dx.$

$$C \quad \_\_\_\_\_ \quad D$$

c. [2 points] Let $f(x) = x^2$. Let A be the average value of $f(x)$ over the interval $7 \leq x \leq 8$, and let $B = \dfrac{f(13)}{3}$.

$$A \quad \_\_\_\_\_ \quad B$$

d. [2 points] Let $h(x)$ be a continuous function and let $H(x)$ and $G(x)$ be two anti-derivatives of $h(x)$. Suppose $H(0) > G(0)$.

$$G(1) \quad \_\_\_\_\_ \quad H(1)$$

e. [2 points] Let $F(x) = \displaystyle\int_0^x f(t)dt$ where $f(t)$ is increasing and positive.

$$F(1) \quad \_\_\_\_\_ \quad F'(0)$$