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 \( \int \frac{1}{(x + 2)(x - 1)} \, dx = \int \left( \frac{C}{x + 2} + \frac{D}{x - 1} \right) \, dx \).

\[
C \quad < \quad D
\]

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 \( B = \frac{f(13)}{3} \).

\[
A \quad = \quad B
\]

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 \( F(x) = \int_0^x f(t) \, dt \) where \( f(t) \) is increasing and positive.

\[
F(1) \quad > \quad F'(0)
\]