1. Evaluate each of the following integrals.

\[ \int_{0}^{1} \frac{2x}{7 + 3x^2} \, dx \]

\[ \int x^4 \ln x \, dx \]

\[ \int x^5 \sin(x^3) \, dx \]

2. Consider an increasing, concave up function \( f(x) \).
   a) Put in ascending order the following quantities:
      \[ \text{LHS}(300), \text{RHS}(300), \text{MID}(300), \text{TRAP}(300), \int_{a}^{b} f(x) \, dx \]

   b) What can you say with certainty about where \( \text{SIMP}(300) \) would fit into your order above?

   c) What can you say with certainty about where \( \text{TRAP}(400) \) would fit into your order above?