1) Use the graph of \( y = f(x) \) to the right and geometry to find the \textbf{exact} value of the expression below.
\[
\int_{1}^{4} f(x) \, dx
\]

2) Use the graph above to find the \textbf{approximate} Riemann sum using 3 rectangles.

3) Find the integral below.
\[
\int 4x^3 \, dx
\]

4) Find the integral below.
\[
\int x(2x^2 + 3)^5 \, dx
\]