29. \( f(x) = x^3 + 1 \) \([0, 2]\)  
\[ \Delta x = \frac{2-0}{n} = \frac{2}{n} \]

\[ x_k = 0 + k \left( \frac{2}{n} \right) = \frac{2k}{n} \]

\[ \text{area} = \lim_{n \to \infty} \sum_{k=1}^{n} f(x_k) \Delta x = \lim_{n \to \infty} \sum_{k=1}^{n} \left( \frac{8k^3}{n^3} + 1 \right) \frac{2}{n} \]

\[ = \lim_{n \to \infty} \sum_{k=1}^{n} \left( \frac{16k^3}{n^4} + \frac{2}{n} \right) = \lim_{n \to \infty} \left( \frac{16}{n^4} \sum_{k=1}^{n} k^3 + \frac{\sum_{k=1}^{n} 2}{n} \right) \]

\[ = \lim_{n \to \infty} \left[ \frac{16}{n^4} \frac{n^2(n+1)^2}{4} + 2 \right] = \lim_{n \to \infty} \left[ 4 \left( \frac{(n+1)}{n} \right)^2 + 2 \right] \]

\[ = 4 + 2 = 6 \]

30. \( f(x) = 4x + x^3 \) \([0, 2]\)  
\[ \Delta x = \frac{2}{n} \quad x_k = \frac{2k}{n} \]

\[ \text{area} = \lim_{n \to \infty} \sum_{k=1}^{n} f(x_k) \Delta x = \lim_{n \to \infty} \sum_{k=1}^{n} \left( \frac{8k + 8k^3}{n^3} \right) \frac{2}{n} \]

\[ = \lim_{n \to \infty} \left( \frac{8k}{n^2} + 16 \frac{k^3}{n^3} \right) \]

\[ = \lim_{n \to \infty} \left[ \frac{8k}{n^2} \frac{n(n+1)}{2} + 16 \frac{1}{n} \frac{n^2(n+1)^2}{4} \right] \]

\[ = \lim_{n \to \infty} \left[ \frac{8(n+1)}{n} + 4 \left( \frac{n+1}{n} \right)^2 \right] = 8 + 4 = 12 \]