LO 3.2A Interpret the definite integral as the limit of a Riemann sum. Express the limit of a Riemann sum in integral notation.

Instructions: Match the integral expression in the left column with the appropriate limit of a Riemann sum in the right column.

| | | |
|---|---|---|
| 1. $\int_1^3 (4x^2 + 2)\,dx$ | _____ | a. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(5 - \frac{3j}{n}\right) - 2\right]\left(\frac{-3}{n}\right)$ |
| 2. $\int_2^5 (x^3 + 1)\,dx$ | _____ | b. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(2 + \frac{3j}{n}\right)^2 + 2\right]\left(\frac{3}{n}\right)$ |
| 3. $\int_7^5 (3x + 1)\,dx$ | _____ | c. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[\left(2 + \frac{3j}{n}\right)^3 + 1\right]\left(\frac{3}{n}\right)$ |
| 4. $\int_2^4 (4x^2 + 2)\,dx$ | _____ | d. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(1 + \frac{2j}{n}\right)^2 + 2\right]\left(\frac{2}{n}\right)$ |
| 5. $\int_5^2 (4x - 2)\,dx$ | _____ | e. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[3\left(7 - \frac{2j}{n}\right) + 1\right]\left(\frac{-2}{n}\right)$ |
| 6. $\int_2^5 (4x^2 + 2)\,dx$ | _____ | f. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(3 - \frac{2j}{n}\right)^2 + 2\right]\left(\frac{-2}{n}\right)$ |
| 7. $\int_5^7 (4x - 2)\,dx$ | _____ | g. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[3\left(2 + \frac{3j}{n}\right) + 1\right]\left(\frac{3}{n}\right)$ |
| 8. $\int_3^1 (4x^2 + 2)\,dx$ | _____ | h. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(5 + \frac{2j}{n}\right) - 2\right]\left(\frac{2}{n}\right)$ |
| 9. $\int_5^7 (x^3 + 1)\,dx$ | _____ | i. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[\left(5 + \frac{2j}{n}\right)^3 + 1\right]\left(\frac{2}{n}\right)$ |
| 10. $\int_2^5 (3x + 1)\,dx$ | _____ | j. $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(2 + \frac{2j}{n}\right)^2 + 2\right]\left(\frac{2}{n}\right)$ |

LO 3.2A Interpret the definite integral as the limit of a Riemann sum. Express the limit of a Riemann sum in integral notation.

Instructions: Fill in the missing integral expression in the left column or the appropriate limit of a Riemann sum in the right column.

| | |
|---|---|
| 1. $\int_1^3 (4x^2 + 2)\,dx$ | _____ |
| 2. _____ | $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(2 + \frac{3j}{n}\right)^2 + 2\right]\left(\frac{3}{n}\right)$ |
| 3. $\int_7^5 (3x + 1)\,dx$ | _____ |
| 4. _____ | $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(2 + \frac{2j}{n}\right)^2 + 2\right]\left(\frac{2}{n}\right)$ |
| 5. $\int_5^2 (4x - 2)\,dx$ | _____ |
| 6. _____ | $\lim_{n\to\infty} \sum_{j=1}^{n} \left[4\left(3 - \frac{2j}{n}\right)^2 + 2\right]\left(\frac{-2}{n}\right)$ |
| 7. $\int_5^7 (4x - 2)\,dx$ | _____ |
| 8. _____ | $\lim_{n\to\infty} \sum_{j=1}^{n} \left[3\left(2 + \frac{3j}{n}\right) + 1\right]\left(\frac{3}{n}\right)$ |
| 9. $\int_5^7 (x^3 + 1)\,dx$ | _____ |
| 10. _____ | $\lim_{n\to\infty} \sum_{j=1}^{n} \left[\left(2 + \frac{3j}{n}\right)^3 + 1\right]\left(\frac{3}{n}\right)$ |