1. (1 point) Find the numerical value of the sum below.

$\sum_{k=4}^{7} k^2 =$ ______

Answer(s) submitted:

-

(incorrect)

2. (1 point) Find the numerical value of the sum below.

$\sum_{i=3}^{7} (i^2 - i) =$ ______

Answer(s) submitted:

-

(incorrect)

3. (1 point) Find the numerical value of the sum below.

$\sum_{k=1}^{80} k =$ ______

Answer(s) submitted:

-

(incorrect)

4. (1 point) Find the numerical value of the sum below.

$\sum_{k=1}^{100} 20 =$ ______

Answer(s) submitted:

-

(incorrect)

5. (1 point) Estimate $\int_0^4 x^2\,dx$ using left endpoints for $n = 5$ approximating rectangles.

$\int_0^4 x^2\,dx$ is approximately ______

Answer(s) submitted:

-

(incorrect)

6. (1 point) Estimate $\int_0^4 x^2\,dx$ using midpoints for $n = 5$ approximating rectangles.

$\int_0^4 x^2\,dx$ is approximately ______

Answer(s) submitted:

-

(incorrect)

7. (1 point) Estimate $\int_0^4 x^2\,dx$ using right endpoints for $n = 6$ approximating rectangles.

$\int_0^4 x^2\,dx$ is approximately ______

Answer(s) submitted:

-

(incorrect)

8. (1 point) Estimate $\int_1^4 (5x-3)\,dx$ using left endpoints for $n = 5$ approximating rectangles.

$\int_1^4 (5x-3)\,dx$ is approximately ______

Answer(s) submitted:

-

(incorrect)

9. (1 point) Estimate $\int_1^6 (2x-5)\,dx$ using midpoints for $n = 5$ approximating rectangles.

$\int_1^6 (2x-5)\,dx$ is approximately ______

Answer(s) submitted:

-

(incorrect)

10. (1 point) Estimate $\int_1^5 (6x-1)\,dx$ using right endpoints for $n = 5$ approximating rectangles.

$\int_1^5 (6x-1)\,dx$ is approximately ______

Answer(s) submitted:

-

(incorrect)

11. (1 point) In this problem you will calculate $\int_0^3 x^2 + 3\,dx$ by using the formal definition of the definite integral:

$$\int_a^b f(x)\,dx = \lim_{n\to\infty} \left[\sum_{k=1}^{n} f(x_k^*)\Delta x \right].$$

(a) The interval $[0,3]$ is divided into n equal subintervals of length Δx. What is Δx (in terms of n)?

$\Delta x =$ ______

(b) The right-hand endpoint of the kth subinterval is denoted x_k^*. What is x_k^* (in terms of k and n)?

$x_k^* =$ ______

(c) Using these choices for x_k^* and Δx, the definition tells us that

$$\int_0^3 x^2+3\,dx = \lim_{n\to\infty}\left[\sum_{k=1}^{n} f(x_k^*)\Delta x\right].$$

What is $f(x_k^*)\Delta x$ (in terms of k and n)?
$f(x_k^*)\Delta x =$ ______________

(d) Express $\sum_{k=1}^{n} f(x_k^*)\Delta x$ in closed form. (Your answer will be in terms of n.)
$\sum_{k=1}^{n} f(x_k^*)\Delta x =$ ______________

(e) Finally, complete the problem by taking the limit as $n\to\infty$ of the expression that you found in the previous part.
$\int_0^3 x^2+3\,dx = \lim_{n\to\infty}\left[\sum_{k=1}^{n} f(x_k^*)\Delta x\right] =$ ________

Answer(s) submitted:

-
-
-
-
-

(incorrect)

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12. (1 point) In this problem you will calculate $\int_0^2 2x^3\,dx$ by using the formal definition of the definite integral:

$$\int_a^b f(x)\,dx = \lim_{n\to\infty}\left[\sum_{k=1}^{n} f(x_k^*)\Delta x\right].$$

(a) The interval $[0,2]$ is divided into n equal subintervals of length Δx. What is Δx (in terms of n)?
$\Delta x =$ ______________

(b) The right-hand endpoint of the kth subinterval is denoted x_k^*. What is x_k^* (in terms of k and n)?
$x_k^* =$ ______________

(c) Using these choices for x_k^* and Δx, the definition tells us that

$$\int_0^2 2x^3\,dx = \lim_{n\to\infty}\left[\sum_{k=1}^{n} f(x_k^*)\Delta x\right].$$

What is $f(x_k^*)\Delta x$ (in terms of k and n)?
$f(x_k^*)\Delta x =$ ______________

(d) Express $\sum_{k=1}^{n} f(x_k^*)\Delta x$ in closed form. (Your answer will be in terms of n.)
$\sum_{k=1}^{n} f(x_k^*)\Delta x =$ ______________

(e) Finally, complete the problem by taking the limit as $n\to\infty$ of the expression that you found in the previous part.
$\int_0^2 2x^3\,dx = \lim_{n\to\infty}\left[\sum_{k=1}^{n} f(x_k^*)\Delta x\right] =$ ________

Answer(s) submitted:

-
-
-
-
-

(incorrect)