

MAT 126 Fall 2020, Quiz 2

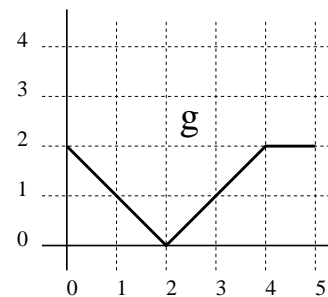
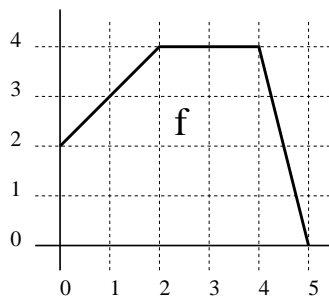
Name	ID	Section
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THIS QUIZ IS WORTH 10 POINTS. NO BOOKS, NOTES OR CALCULATORS ARE ALLOWED.

Write the correct answer in the box.

- (1) Compute the integral $\int_0^4 f(x)dx$ for the function plotted below.

- (a) 2
- (b) 4
- (c) 6
- (d) 10
- (e) 12
- (f) 14
- (g) 16
- (h) 18
- (i) 22
- (j) none of these



- (2) Compute the integral $\int_0^5 f(x) + g(x)dx$ using the functions plotted above.

- (a) -6
- (d) 4
- (g) 14
- (b) -2
- (e) 6
- (h) 18
- (c) 0
- (f) 10
- (i) 22
- (j) none of these

- (3) Estimate the integral $\int_0^4 f(x)g(x)dx$ using the function plotted above and left-hand rule with 4 intervals (use left endpoint of each subinterval).

- (a) 4
- (d) 7
- (g) 10
- (b) 5
- (e) 8
- (h) 11
- (c) 6
- (f) 9
- (i) 12
- (j) none of these

- (4) Estimate the integral $\int_1^5 f(g(x))dx$ using the functions plotted above and left-hand rule with 2 intervals.

- (a) 4
- (d) 7
- (g) 10
- (b) 5
- (e) 8
- (h) 11
- (c) 6
- (f) 9
- (i) 12
- (j) none of these

(5) Write down the integral that is represented by

$$\lim_{n \rightarrow \infty} \frac{2}{n} \sum_{k=1}^n \left(4 - \frac{4k^2}{n^2}\right)^{1/2}.$$

(a) $2 \int_0^1 \sqrt{4 - x^2} dx$

(g) $\int_0^1 \sqrt{4 - x^2} dx$

(b) $4 \int_0^1 4 - 4x^2 dx$

(h) $2 \int_0^1 4 - 4x^2 dx$

(m) $2 \int_0^1 \sqrt{4 - 2x^2} dx$

(c) $4 \int_{-1}^1 4 - 4x^2 dx$

(i) $2 \int_{-1}^1 4 - 4x^2 dx$

(n) $2 \int_0^1 4 - 2x^2 dx$

(d) $4 \int_0^1 \sqrt{4 - 4x^2} dx$

(j) $2 \int_0^1 \sqrt{4 - 4x^2} dx$

(o) $2 \int_{-1}^1 4 - 2x^2 dx$

(e) $2 \int_0^1 4 - x^2 dx$

(k) $\int_0^1 4 - x^2 dx$

(p) none of these

(f) $2 \int_{-1}^1 4 - x^2 dx$

(l) $\int_{-1}^1 4 - x^2 dx$

(6) Use geometry to evaluate the integral in part (5) and find the value of the limit.

(a) $2\pi/3$

(d) 0

(g) $2/3$

(b) π

(e) $1/2$

(h) 1

(j) none of these

(c) 2π

(f) $1/4$

(i) $\pi/4$

TRUE/FALSE: put a T or F in each box.

(7) The right hand rule gives a lower bound for $\int_0^4 e^{-x} dx$.

(8) If $a < b < c$ then $\int_a^b f(x) dx + \int_b^a f(x) dx = 2 \int_a^b f(x) dx$.

(9) $\int_0^1 \frac{dx}{\sqrt{1+x}} \leq \int_0^1 \frac{dx}{\sqrt{1+x^2}}$.

(10) $\int_{-1}^1 x^{1001} e^{-x} dx > 0$.