Assignment 6

The due date for submitting this assignment has passed. Due on 2019-03-13, 23:59 IST.
As per our records you have not submitted this assignment.

1) \[ \int_0^P x^{n-1}(p-x)^{n-1} dx = \beta(m,n) \]

a. \( p^{n+m-1} \)

b. \( p^{m+n} \)

c. \( p^{m-n-1} \)

d. \( p^{m-n+1} \)

No, the answer is incorrect.

Score: 0

Accepted Answers:
(a)

2) \[ \int_0^{\frac{\pi}{2}} \sqrt{\tan \theta} \ d\theta = \ldots \]

a. \( \frac{1}{2} \Gamma \left( \frac{2}{2} \right) \Gamma \left( \frac{2}{2} \right) \)

b. \( \frac{1}{2} \Gamma \left( \frac{2}{4} \right) \Gamma \left( \frac{2}{2} \right) \)

c. \( \frac{1}{2} \Gamma \left( \frac{2}{4} \right) \Gamma \left( \frac{2}{4} \right) \)

d. \( \frac{1}{2} \Gamma \left( \frac{2}{4} \right) \Gamma \left( \frac{2}{2} \right) \)

(a)
3) \[ \int_0^1 x^4 \left( \ln \frac{1}{x} \right)^2 \, dx = \text{_____} \]

- a. \( \frac{2}{625} \)
- b. \( \frac{6}{625} \)
- c. \( -\frac{6}{625} \)
- d. \( -\frac{2}{625} \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b)

4) \[ \int_0^1 \int_0^x (x^2 + y^2) \, dx \, dy = \text{_____} \]

- a. \( \frac{26}{105} \)
- b. \( \frac{4}{105} \)
- c. \( \frac{12}{105} \)
- d. \( \frac{16}{105} \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a)

5) \[ \int_0^4 \int_0^{\sqrt{y}} e^{x/\sqrt{y}} \, dx \, dy = \text{_____} \]

- a. \( \frac{12}{3} (e + 1) \)
- b. \( \frac{16}{3} (e - 1) \)
- c. \( \frac{12}{3} (e - 1) \)
- d. \( \frac{14}{3} (e + 1) \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b)
6) If \( R \) is the region \( 0 \leq x \leq y \leq L \), then

\[
\int \int_{R} (x^2 + y^2) \, dx \, dy = \_\_\_\_\_\_\_\_\_\_.
\]

- a. \( \frac{L^2}{2} \)
- b. \( \frac{L^5}{3} \)
- c. \( \frac{L^5}{2} \)
- d. \( \frac{L^3}{2} \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) (b) (c) (d)

7) If \( \int_{x}^{9} f(x, y) \, dy \, dx = \int_{0}^{q} \int_{r}^{s} f(x, y) \, dx \, dy \), then the values of \( p, q, r \) and \( s \) are

- a. \( p = 0, q = -9, r = 0, s = \sqrt{y} \)
- b. \( p = 0, q = 1, r = 0, s = \sqrt{y} \)
- c. \( p = 0, q = 9, r = 0, s = -\sqrt{y} \)
- d. \( p = 0, q = 9, r = 0, s = \sqrt{y} \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) (b) (c) (d)

8) The area of the region enclosed by the curves \( y_1 = e^x, y_2 = x^2 - 1, x = -1 \) and \( x = 1 \) is

- a. \( \frac{3e^2 - 4e + 3}{3e} \)
- b. \( \frac{3e^2 - 4e - 3}{3} \)
- c. \( \frac{3e^2 + 4e - 3}{3e} \)
- d. \( \frac{3e^2 + 4e + 3}{3} \)

No, the answer is incorrect.
9) The volume enclosed under the surface \( z = \sqrt{1 - x^2} \) and above the triangle formed by \( y = 1 \) and the \( x \)-axis is

- a. \( \frac{1}{3} \)
- b. \( \frac{-1}{3} \)
- c. \( \frac{1}{3} \)
- d. \( \frac{-2}{3} \)

No, the answer is incorrect.

Score: 0
Accepted Answers:
(a) (b) (c) (d)

10) Using differentiation under integral sign, the value of the integral

\[ \int_0^1 \frac{x^p - 1}{\log x} \, dx \]

is ______.

- a. \( \log(p + 1) \)
- b. \( -\log(p + 1) \)
- c. \( \log(p - 1) \)
- d. \( -\log(p - 1) \)

No, the answer is incorrect.

Score: 0
Accepted Answers:
(a)