Area

Total Time 60 Min, No Negative Marking

Points: 44/60

1

Name *

DHRUV GARG

2

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3

Question
(4/4 Points)

The area enclosed in the region $\frac{x^2}{a^2}+\frac{y^2}{b^2}\le 1$ and $\frac{x}{a}+\frac{y}{b}\ge 1$ is

(A) $\frac{\pi ab}{4}-\frac{1}{2}ab$

(B) $\frac{\pi ab}{4}$

(C) πab

(D) none of thes

- (●) Option A ✓
- ( ) Option B
- ( ) Option C
- ( ) Option D

✗

4

Question
(0/4 Points)

The area common to the region determined by $y \ge \sqrt{x}$, and $x^2+y^2 < 2$ with $y-axis$ value

(A) π-2

(B) 2π-1

(C) $3\pi - \sqrt{2}/3$

(D) none of these

- (●) Option A
- ( ) Option B
- ( ) Option C
- ( ) Option D ✓

5

Question
(4/4 Points)

The area of the region for which $0 < y < 3 - 2x - x^2$ and $x > 0$ is

(A) $\int_1^3 (3 - 2x - x^2)\,dx$

(B) $\int_0^3 (2 - 2x -$

(C) $\int_0^1 (3 - 2x - x^2)\,dx$

(D) $\int_{-1}^3 (2 - 2x -$

- Option A
- Option B
- Option C ✓
- Option D

6

Question
(4/4 Points)

The area between the curves $y = xe^x$ and $y = x\,e^{-x}$ and the lin

(A) 2e
(B) e
(C) 2/e
(D) 1/e

- Option A
- Option B
- Option C ✓
- Option D

7

Question
(4/4 Points)

Let $f(x)=\min\left\{(x+1), \sqrt{(1-x)}\right\}$, then area bounded by f(x) and x

(A) $\frac{1}{6}$ (B) $\frac{5}{6}$

(C) $\frac{7}{6}$ (D) $\frac{11}{6}$

- Option A
- Option B
- Option C ✓
- Option D

8

Question
(0/4 Points)

Let $f(x)=\begin{cases} x^2; & x<0 \\ x; & x\geq 0 \end{cases}$

Area bounded by the curve y = f(x), y = 0 and x = ± 3a is $\frac{9a}{2}$, then 'a' is e

(A) –1 or $\frac{1}{2}$

(B) 1 or $-\frac{1}{2}$

(C) 1 or $\frac{1}{2}$

(D) None

- Option A
- Option B
- Option C
- Option D ✓

9

Question
(4/4 Points)

Area of the region bounded by $\sqrt{2}\leq 2|x+y|\leq 2\sqrt{2}$ and the

(A) $\frac{3}{8}$ sq. units

(B) $\frac{3}{2}$ sq. u

(C) $\frac{3}{4}$ sq. units

(D) None

- Option A
- Option B ✓
- Option C
- Option D

10

Question
(4/4 Points)

Area common to the curves $y = x^3$ and $y = \sqrt{x}$ is

(A) $\frac{5}{12}$ (B) $\frac{5}{6}$

(C) $\frac{5}{8}$ (D) none of the

- [x] Option A
- [ ] Option B
- [ ] Option C
- [ ] Option D

11

Question
(4/4 Points)

The area enclosed by y = ln x, its normal at (1, 0) and y-axis

(A) 1/2 (B) 3/2

(C) Not defined (D) none of

- [ ] Option A
- [x] Option B
- [ ] Option C
- [ ] Option D

12

Question
(4/4 Points)

Area bounded by f(x) = max.(sinx, cosx); $0 \le x \le \pi/2$ $x = \pi/2$ and the coordinate axes
(A) $\sqrt{2}$ sq. units
(B) 2 sq. units
(C) $\frac{1}{\sqrt{2}}$ sq. units
(D) None of these

- (●) Option A ✓
- ( ) Option B
- ( ) Option C
- ( ) Option D

13

Question
(4/4 Points)

If area bounded by y = f(x), the coordinate axes and the line x = a is given by ae^a
(A) $\pm e^x(x+1)$
(B) e^x
(C) $x e^x$
(D) xe^x+1

- (●) Option A ✓
- ( ) Option B
- ( ) Option C
- ( ) Option D

14

Question
(0/4 Points)

The area bounded by the curves $y = |x| - 1$ and $y = - |x| +$
(A) 1 (B) 2
(C) $2\sqrt{2}$ (D) 4

- Option A
- Option B ✓
- Option C
- Option D

15

Question
(4/4 Points)

The area bounded by the curves $|x| + |y| \geq 1$ and $x^2 + y^2 \leq 1$ is
(A) 2 sq. units (B) π sq. uni
(C) π - 2 sq. units (D) π + 2 sq.

- Option A
- Option B
- Option C ✓
- Option D

16

Question
(4/4 Points)

If the area bounded by the curve , y =f(x), the lines x=1, x = b and the x-axis is (b 4), b > 1, then f(x) is

(A) (x-5) sin (3x+4)
(B) (x-1) sin (x+1)+ (x+1) cos (x-1)
(C) cos (3x+4) –3(x-1) sin (3x+4)
(D) (x-5) cos (3x+4)

- Option A
- Option B
- Option C ✓
- Option D

17

Question
(0/4 Points)

The area of the smaller region bounded by the circle $x^2+y^2 = 1$ and

(A) $\frac{\pi}{4}-\frac{1}{2}$
(B) $\frac{\pi}{2}-1$
(C) $\frac{\pi}{2}$
(D) $\frac{\pi}{2}+1$

- Option A
- Option B ✓
- Option C

Option D

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