CTQ - 2023

CTQ : Concept Through Questions

Topic : Area under curve

Year : 2023

1. The area between the curve $y = x\,e^x$ and $y = x\,e^{-x}$ and the line x=1 in square unit, is

   a) $2\left(e + \frac{1}{e}\right)$ sq unit

   b) 0 sq unit

   c) 2e sq unit

   d) 2/e sq unit

   Video Solution

2. The area of the figure bounded by $y = \sin x,\ y = \cos x\ in$ the first quadrant, is

   a) $2(\sqrt{2} - 1)$

   b) $\sqrt{3} + 1$

   c) $2(\sqrt{3} - 1)$

   d) None of these

   Video Solution

3. The area bounded by $y = 2 - |2 - x|$ and $y = \frac{3}{|x|}$ is

   a) $\frac{4 + 3\log 3}{2}$ sq unit

   b) $\frac{4 - 3\log 3}{2}$ sq unit

   c) $3/2\ log\ 3$ sq unit

   d) $1/2 + log\ 3$ sq unit

   Video Solution

4. The area bounded by the y-axis, $y = cos\ x$ and $y = sin\ x\ 0 \le x \le \pi/4$ is

   a) $2(\sqrt{2} - 1)$

   b) $\sqrt{2} - 1$

   c) $\sqrt{2} + 1$

   d) $\sqrt{2}$

   Video Solution

5. The area (in square unit) of the region enclosed by the curves $y = x^2$ and $y = x^3$ is

   a) 1/12

   b) 1/6

   c) 1/3

   d) 1

   Video Solution

6. The area bounded by curves $y^2 = 8x$ and $x^2 = 8y$ is

   a) 64 sq units

   b) 64/3 sq units

   c) 8/3 sq units d)

   d) None of these

   Video Solution

7. The area of the figure bounded by $y^2 = 2x + 1$ and $x - y = 1$ is

   a) 2/3

   b) 4/3

   c) 8/3

   d) 16/3

   Video Solution

8. Area of the region satisfying $x \le 2, y \le |x|$ and x≥0 is

   a) 4 sq units

   b) 1 sq units

   c) 2 sq units

   d) None of these

   Video Solution

9. The area enclosed between the curve $y = 1 + x^2$, the x-axis and the line y=5 is given by

   a) 14/3 sq units

   b) 7/3 sq units

   c) 5 sq units

   d) 16/3 sq units

   Video Solution

10. The area bounded by $y = |sin\ x|$, x-axis and the lines |x|=π is

    a) 2 sq units

    b) 3 sq units

    c) 4 sq units

    d) None of these

    Video Solution

11. The volume of the solid is generated by revolving about the y-axis. The figure bounded by the parabola $y = x^2$ and $x = y^2$ is

    a) $21/5\ \pi$

    b) $24/5\ \pi$

c) $3\pi/10$ d) $5/24\,\pi$ Video Solution

12. The area of the figure bounded by $|y| = 1 - x^2$ is in square units,
    a) 4/3   b) 8/3
    c) 16/3   d) 5/3   Video Solution

13. The area enclosed between the curves $y = x^3$ and $y = \sqrt{x}$ is
    a) 5/3 sq units   b) 5/4 sq units
    c) 5/12 sq units   d) 12/5 sq units   Video Solution

14. The area of the plane bounded by the curves $y = \sqrt{x}, x \in [0,1], y \in x^2, x \in [1,2]$ and
    $y = -x^2 + 2x + 4, x \in [0,2]$ is:
    a) 10/7   b) 19/3
    c) 3/5   d) 4/3   Video Solution
    [NIMCET 2008]

15. The area between the curves $y = 2 - x^2$ and $y = x^2$ is:
    (a) 8/3   (b) 4/3   (c) 2/3   (d) 5/3   Video Solution
    [NIMCET 2010]

16. The area enclosed within the curve |x|+|y| = 1 (in square units) is
    (a) $\sqrt{2}$ (b) 1   (c) $\sqrt{3}$ (d) 2   Video Solution
    [NIMCET 2013]

17. The area of the region bounded by the lines y=|x-1| and y=3-|x| is
    (a) 3 sq. units   (b) 4 sq. units
    (c) 6 sq. units   (d) 2 sq. units   Video Solution
    [NIMCET 2016]

18. The area enclosed between the curves $y^2 = x$ and y=|x| is
    (a) 2/3 sq. unit   (b) 1 sq. unit
    (c) 1/6 sq. unit   (d) 1/3 sq. unit   Video Solution
    [NIMCET 2020, NIMCET 2018]

19. Find the area bounded by the line $y = 3 - x$, the parabola $y = x^2 - 9$ and $x \geq -4, y \geq 0$.
    (a) 7/2   (b) 11/2
    (c) 9/2   (d) None of these   Video Solution
    [NIMCET 2020]

20. The area of the region bounded by the X-axis and the curves defined by $y = \tan x$, $-\frac{\pi}{3} \leq x < \frac{\pi}{3}$ and
    $y = \cot x, \frac{\pi}{6} \leq x \leq \frac{3\pi}{2}$ is
    (a) $-\frac{1}{2}\log 2$ (b) $1/2\ log\ 2$
    (c) $\log\frac{3}{2}$ (d) None of these   Video Solution
    [NIMCET 2021]

21. Area enclosed within the curve $|x| + |y| = 2$ is
    (a) 16 sq. units   (b) 24 sq. units
    (c) 32 sq. units   (d) 8 sq. units   Video Solution
    [NIMCET 2022]

Answer Key

Ques.	1	2	3	4	5	6	7	8	9	10
Ans.	D	A	B	B	A	B	D	C	D	C
Ques.	11	12	13	14	15	16	17	18	19	20
Ans.	C	B	C	B	A	D	B	C	D	C
Ques.	21									
Ans.	D									