

MATHEMATICS

Topic: Area Under The Curve

- Q.1** The area between the curves $y = 6 - x - x^2$ and x-axis is -
(A) $125/6$ (B) $125/2$
(C) $25/6$ (D) $25/2$
- Q.2** The area between the curve $y = e^x$ and x-axis which lies between $x = -1$ and $x = 1$ is-
(A) $e^2 - 1$ (B) $(e^2 - 1)/e$
(C) $(1 - e)/e$ (D) $(e - 1)/e^2$
- Q.3** The area bounded by the curve $y = \sin 2x$, x- axis and the ordinate $x = \pi/4$ is-
(A) $\pi/4$ (B) $\pi/2$
(C) 1 (D) $1/2$
- Q.4** The area between the curve $xy = a^2$, x-axis, $x = a$ and $x = 2a$ is-
(A) $a \log 2$ (B) $a^2 \log 2$
(C) $2a \log 2$ (D) none of these
- Q.5** Area under the curve $y = \sin 2x + \cos 2x$ between $x = 0$ and $x = \frac{\pi}{4}$, is-
(A) 2 sq. units (B) 1 sq. units
(C) 3 sq. units (D) 4 sq. units

Q.6 The area bounded by the curve $y = 4x^2$; $x = 0$, $y = 1$ and $y = 4$ in the first quadrant is-

(A) $2\frac{2}{3}$ (B) $3\frac{1}{3}$

(C) $2\frac{1}{3}$ (D) $3\frac{1}{2}$

Q.7 The area between the curve $y = \sec x$ and y -axis when $1 \leq y \leq 2$ is-

(A) $\frac{2\pi}{3} - \log(2 + \sqrt{3})$

(B) $\frac{2\pi}{3} + \log(2 + \sqrt{3})$

(C) $\frac{\pi}{3} - \frac{1}{2} \log(2 + \sqrt{3})$

(D) None of these

Q.8 The area bounded by the lines $y = x$, $y = 0$ and $x = 2$ is-

(A) 1 (B) 2

(C) 4 (D) None of these

Q.9 The area bounded by the curve $y = 1 + 8/x^2$, x -axis, $x = 2$ and $x = 4$ is-

(A) 2 (B) 3

(C) 4 (D) 5

Q.10 The area between the curve $y = \log x$ and x -axis which lies between $x = a$ and $x = b$ ($a > 1$, $b > 1$) is-

(A) $b \log(b/e) - a \log(a/e)$

(B) $b \log(b/e) + a \log(a/e)$

(C) $\log ab$

(D) $\log(b/a)$

Q.11 Area bounded by the curve $y = xe^{x^2}$, x-axis and the ordinates $x = 0$, $x = \alpha$ is-

- (A) $\frac{e^{\alpha^2} + 1}{2}$ sq. units (B) $\frac{e^{\alpha^2} - 1}{2}$ sq. units
(C) $e^{\alpha^2} + 1$ sq. units (D) $e^{\alpha^2} - 1$ sq. units

Q.12 The area bounded between the curve $y = 2x^2 + 5$, x-axis and ordinates $x = -2$ and $x = 1$ is-

- (A) 21 (B) 29/5
(C) 23 (D) 24

Q.13 Area bounded by curve $xy = c$, x-axis between $x = 1$ and $x = 4$, is-

- (A) $c \log 3$ sq. units
(B) $2 \log c$ sq. units
(C) $2c \log 2$ sq. units
(D) $2c \log 5$ sq. units

Q.14 The area bounded by the curve $y = x \sin x^2$, x-axis and $x = 0$ and $x = \sqrt{\frac{\pi}{2}}$ is-

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

Q.15 The area bounded between the curve $\frac{x}{4} - \frac{y}{2} + 1 = 0$, $x = -2$, $x = 3$ and x-axis is-

- (A) 45/4 (B) 45/2
(C) 15 (D) 25/2

Q.16 The area bounded by curves $y = \tan x$, x-axis and $x = \frac{\pi}{3}$ is-

- (A) $2 \log 2$ (B) $\log 2$
(C) $\log \left(\frac{2}{\sqrt{3}} \right)$ (D) 0

Q.17 The area between the curve $x^2 = 4ay$, x-axis, and ordinate $x = d$ is-

- (A) $d^3/12a$ (B) d^3/a
(C) $d^3/2a$ (D) $d^3/6a$

Q.18 Area bounded by the curve $y = x(x - 1)^2$ $0 \leq x \leq 1$ and x-axis is-

- (A) 4 (B) $1/3$
(C) $1/12$ (D) $1/2$

Q.19 The area bounded by the curve $y = \log_e x$, x-axis and ordinate $x = e$ is-

- (A) $\log_e 2$ (B) $1/2$ unit
(C) 1 unit (D) e unit

Q.20 The area bounded by the curve $y = \frac{1}{\cos^2 x}$, coordinates axes and $x = \pi/4$ is-

- (A) 1 (B) 2
(C) $\pi/4$ (D) ∞

Q.21 The area between the curve $y^2 = 4x$, y-axis, and $y = -1$ and $y = 3$ is-

- (A) $7/3$ (B) $9/4$
(C) $1/12$ (D) $1/4$

Q.22 The area bounded by the curve $y = \sin 2x$, y-axis and the abscissa $y = 1$ is-

- (A) 1 (B) $1/4$
(C) $\pi/4$ (D) $(\pi/4) - (1/2)$

Q.23 The area between the curve $x = 2y - y^2$ and y-axis is-

- (A) $9/4$ (B) $4/3$
(C) 9 (D) None of these

- Q.24** The area bounded by the curve $x^2 = 8y$, x-axis and the ordinate $x = -2$, $x = 4$ is-
- (A) 4 (B) 2
(C) 1 (D) 3
- Q.25** The area bounded by the curve $y^2 = x$, straight line $y = 4$, and y-axis is-
- (A) $16/3$ (B) $64/3$
(C) $7\sqrt{2}$ (D) None of these
- Q.26** The area between the curve $y = \sin^3 x$, x-axis, and the ordinates $x = 0$ to $x = \pi/2$ is-
- (A) 1 (B) $1/3$
(C) $2/3$ (D) $3/2$
- Q.27** The value of a for which the area of the region bounded by the curve $y = \sin 2x$, the straight lines $x = \pi/6$, $x = a$ and x-axis is equal to $1/2$ is-
- (A) $\pi/2$ (B) $\pi/3$
(C) $4/3$ (D) $\pi/6$
- Q.28** The area of a loop bounded by the curve $y = a \sin x$ and x-axis is-
- (A) a (B) $2a^2$
(C) 0 (D) 2a
- Q.29** The area between the curves $x = 2 - y - y^2$ and y-axis is-
- (A) 9 (B) $9/2$
(C) $9/4$ (D) 3
- Q.30** The area bounded by $y = 4x - x^2$ and the x-axis is-
- (A) $30/7$ (B) $31/7$
(C) $32/3$ (D) $34/3$

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	A	B	D	B	B	C	A	B	C	A
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	B	A	C	A	A	B	A	C	C	A
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	A	D	B	D	B	C	B	D	B	C

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