MATHS

BOOKS - OBJECTIVE RD SHARMA MATHS VOL I (HINGLISH)

AREAS OF BOUNDED REGIONS

Section I Solved Mcqs

1. The area bounded by the curve $y = |x| - 1$ and $y = -|x| + 1$ is

A. 1

B. 2

C. $\sqrt{2}$

D. 4

Answer: B

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2. The area bounded by the curve $y = \left[\frac{x^2}{64} + 2\right], y = x - 1, y = x - 1$ and $x = 0$ above the x-axis will be-(Where [] represents greatest integer function)

A. 2

B. 3

C. 4

D. none of these

Answer: C

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3. Find the area bounded by $y = xe^{|x|}$ and lines $|x| = 1, y = 0.$

A. 4

B. 6

C. 1

D. 2

Answer: D

4. The area bounded by the curves $y=\ln x$, $y=\ln|x|$, $y=|\ln x|$ and $y=|\ln|x||$ is

A. 5

B. 2

C. 4

D. none of these

Answer: B

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5. Let f(x) be a continuous function such that the area bounded by the curve $y = f(x)$, the x-axis, and the lines $x = 0$ and $x = ais1 + \frac{a^2}{2}\sin$ a. Then,

A. $\left(\frac{\pi}{2}\right) = 1 + \frac{\pi^2}{8}$

B. $f(a) = 1 + \frac{a^2}{2}\sin a$

C. $f(a) = a\sin a + \frac{1}{2}\cos a$

D. none of these

Answer: c

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6. Area bounded by $|x-1| \leq 2$ and $x^2 - y^2 = 1$, is

A. $6\sqrt{2} + \frac{1}{2}\ln\left|3 + 2\sqrt{2}\right|$

B. $6\sqrt{2} + \frac{1}{2}\ln\left|3 - 2\sqrt{2}\right|$

C. $6\sqrt{2} - \ln\left|3 + 2\sqrt{2}\right|$

D. none of these

Answer: C

7. The area bounded by the curve $f(x) = x + \sin x$ and its inverse function between the ordinates $x = 0$ and $x = 2\pi$ is

A. 4π

B. 8π

C. 4

D. 8

Answer: D

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8. Area bounded by $f(x) = \frac{(x-1)(x+1)}{x-2}$ x-axis and ordinates $x = 0$ and $x = \frac{3}{2}$ is

A. $\frac{4}{5}$

B. $\frac{7}{8}$

C. 1

D. none of these

Answer: B

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9. The area of the region $R = \{(x, y) : |x| \leq |y| \text{ and } x^2 + y^2 \leq 1\}$ is

A. $\frac{3\pi}{8}$

B. $\frac{5\pi}{8}$

C. $\frac{\pi}{2}$

D. $\frac{\pi}{8}$

Answer: C

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10. If $f(x) = \max\left\{\sin x, \cos x, \frac{1}{2}\right\}$, then the area of the region bounded by the curves $y = f(x)$, x-axis, Y-axis and $x = \frac{5\pi}{3}$ is

A. $\sqrt{2} - \sqrt{3} + \frac{5\pi}{12}$

B. $\sqrt{2} + \frac{\sqrt{3}}{2} + \frac{5\pi}{12}$

C. $\sqrt{2} + \sqrt{3} + \frac{5\pi}{12}$

D. none of these

Answer: b

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11. The area bounded by the x-axis, the curve $y = f(x)$, and the lines $x = 1, x = b$ is equal to $\sqrt{b^2+1} - \sqrt{2}$ for all $b > 1$, then $f(x)$ is $\sqrt{x-1}$ (b) $\sqrt{x+1}\sqrt{x^2+1}$ (d) $\frac{x}{\sqrt{1+x^2}}$

A. $\sqrt{x-1}$

B. $\sqrt{x+1}$

C. $\sqrt{x^2-1}$

D. $\frac{x}{\sqrt{x^2+1}}$

Answer: d

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12. $If y = f(x)$ makes positive intercepts of 2 and 1 unit on x and coordinate axes and encloses an area of 3/4 square unit with the axes, then $\int_0^2 x f'(x) dx$, is

A. $\frac{3}{2}$

B. 1

C. $\frac{5}{4}$

D. $\frac{-3}{4}$

Answer: d

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13. If a curve $y = a\sqrt{x} + bx$ passes through the point (1,2) and the area bounded by the curve, line x=4 and x-axis is 8 square units, then

A. $a = 3, b = -1$

B. $a = 3, b = 1$

C. $a = -3, b = 1$

D. $a = -3, b = -1$

Answer: A

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14. If the area enclosed between the curves $y = ax^2 and x = ay^2 (a > 0)$ is 1 square unit, then find the value of a.

A. $\frac{1}{\sqrt{3}}$

B. $\frac{1}{2}$

C. 1

D. $\frac{1}{3}$

Answer: A

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15. The area of the region bounded by the curve $y = |x - 2|, x = 1, x = 3$ and the x-axis is

A. 4

B. 2

C. 3

D. 1

Answer: D

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16. Sketch the region bounded by the curves $y = \sqrt{5 - x^2}$ and $y = |x - 1|$ and find its area.

A. $\frac{5\pi}{4} - 2$

B. $\frac{5\pi - 2}{4}$

C. $\frac{5\pi - 2}{2}$

D. $\frac{\pi}{2} - 5$

Answer: B

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17. The area enclosed between the curves $y = x$ and $y = 2x - x^2$ (in square units), is

A. $\frac{1}{2}$

B. $\frac{1}{6}$

C. $\frac{1}{3}$

D. $\frac{1}{4}$

Answer: B

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18. The area enclosed between the curve $y = \log_e(x + e)$ and the coordinate axes is

A. 4

B. 3

C. 2

D. 1

Answer: D

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19. The parabolas $y^2 = 4x and x^2 = 4y$ divide the square region bounded by the lines $x = 4, y = 4$ and the coordinate axes. If S_1, S_2, S_3 are the areas of these parts numbered from top to bottom, respectively, then $S_1 : S_2 \equiv 1:1$ (b) $S_2 : S_3 \equiv 1:2$ $S_1 : S_3 \equiv 1:1$ (d) $S_1 : (S_1 + S_2) = 1:2$

A. $1:1:1$

B. $2:1:2$

C. $1:2:3$

D. $1:3:2$

Answer: a

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20. The area enclosed between the curves $y^2 = x$ and $y = |x|$ is

A. $\frac{1}{6}$

B. $\frac{1}{3}$

C. $\frac{2}{3}$

D. 1

Answer: A

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21. The area of the region bounded by the parabola $(y-2)^2 = x-1$, the tangent to the parabola at the point $(2, 3)$ and the x-axis is

A. 3

B. 6

C. 9

D. 12

Answer: c

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22. The area bounded by the curves $y = \cos x$ and $y = \sin x$ between the ordinates $x = 0$ and $x = \frac{3\pi}{2}$ is

A. $4\sqrt{2} - 1$

B. $4\sqrt{2} + 1$

C. $4\sqrt{2} - 2$

D. $4\sqrt{2} + 2$

Answer: C

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23. Let $f:[1,2] \to [0,\infty)$ be a continuous function such that $f(x) = f(1-x)$ for all $x \in [-1,2]$. Let $R_1 = \int_{-1}^{2} x f(x) dx$, and R_2 be the area of the region bounded by $y = f(x), x = -1, x = 2$ and the x-axis . Then,

A. $2R_1 = R_2$

B. $R_1 = 3R_2$

C. $2R_1 = 3R_2$

D. $3R_1 = R_2$

Answer: A

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24. If $R_1 = \{(x, y) \mid y = 2x + 7,$ where $x \in R$ and $-5 \leq x \leq 5\}$ is a relation. Then find the domain and Range of R_1.

A. $\frac{3}{4}$

B. $\frac{1}{2}$

C. $\frac{1}{3}$

D. $\frac{1}{4}$

Answer: b

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25. The area (in sqaure units) of the region enclosed by the curves $y = x, x = e, y = \frac{1}{x}$ and the positive x-axis is

A. $\frac{1}{2}$

B. 1

C. $\frac{3}{2}$

D. $\frac{5}{2}$

Answer: C

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26. The area of the region bounded by the curve $y = x^3$, and the lines , y=8 and x=0, is

A. 16

B. 8

C. 10

D. 12

Answer: D

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27. Let S be the area of the region enclosed by $y = e^{-x} \hat{} 2, y = 0, x = 0, and x = 1.$ Then $S \geq \frac{1}{e}$ (b) $S \geq 1 = \frac{1}{e}$ $S \leq \frac{1}{4}\left(1 + \frac{1}{\sqrt{e}}\right)$ (d) $S \leq \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{e}}\left(1 - \frac{1}{\sqrt{2}}\right)$

A. $S \geq \frac{1}{e}$

B. $S \geq -\frac{1}{e}$

C. $S \leq \frac{1}{4}\left(1 + \frac{1}{\sqrt{e}}\right)$

D. $S \leq \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{e}}\left(1 - \frac{1}{\sqrt{2}}\right)$

Answer: c

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28. The area bounded by the curves $y = \sqrt{x}, 2y - x + 3 = 0,$ X-axis and lying in the first quadrant is

A. 9

B. 36

C. 18

D. $27/4$

Answer: A

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29. The area enclosed by the curves $y = \sin x + \cos x$ and $y = |\cos x - \sin x|$ over the interval $\left[0, \frac{\pi}{2}\right]$

A. $4\left(\sqrt{2} - 1\right)$

B. $2\sqrt{2}\left(\sqrt{2} - 1\right)$

C. $2\left(\sqrt{2} + 1\right)$

D. $2\sqrt{2}\left(\sqrt{2} + 1\right)$

Answer: B

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30. Find the ratio in which the area bounded by the curves $y^2 = 12x$ and $x^2 = 12y$ is divided by the line $x = 3$.

A. $\frac{245}{4}$

B. $\frac{147}{4}$

C. $\frac{45}{4}$

D. $\frac{137}{4}$

Answer: B

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31. The area of the region described by $A = \{(x, y) : x^2 + y^2 \leq 1 \text{ and } y^2 \leq 1 - x\}$ is :

A. $\frac{\pi}{2} - \frac{2}{3}$

B. $\frac{\pi}{2} + \frac{2}{3}$

C. $\frac{\pi}{2} + \frac{4}{3}$

D. $\frac{\pi}{2} - \frac{4}{3}$

Answer: C

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32. The area (in square units) of the region bounded by $y^2 = 2x$ and $y = 4x - 1$, is

A. $\frac{15}{64}$

B. $\frac{9}{32}$

C. $\frac{7}{32}$

D. $\frac{5}{64}$

Answer: B

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33. Suppose that $F(\alpha)$ denotes the area of the region bounded by $x = 0, x = 2, y^2 = 4x$ and $y = |\alpha x - 1| + |\alpha x - 2| + \alpha x$, where $\alpha \in \{0, 1\}$. Then the value of $F(\alpha) + \frac{8\sqrt{2}}{3}$ when $\alpha = 0$ is (A) 4 (B) 5 (C) 6 (D) 9

A. 4

B. 5

C. 6

D. 9

Answer: c

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34. Suppose that $F(\alpha)$ denotes the area of the region bounded by $x = 0, x = 2, y^2 = 4x$ and $y = |\alpha x - 1| + |\alpha x - 2| + \alpha x$, where $\alpha \in \{0, 1\}$. Then the value of $F(\alpha) + \frac{8\sqrt{2}}{3}$ when $\alpha = 0$ is (A) 4 (B) 5 (C) 6 (D) 9

A. 5

B. 6

C. 7

D. 9

Answer: a

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35. Let $F(x) = \int_{x}^{x^2+\pi/6} 2\cos^2 dt$ for all $x \in R$ and $F: [0, 1/2] \to [0, \infty]$ be continuous function . For $a \in [0, 1/2]$, if F'(a)+2 is the area of the region bounded by x=0, y=0, y=f(x)` and x=a , then f(0), is

A. 1

B. 2

C. 3

D. 6

Answer: c

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36. The area of the region bounded by the curve C $: y = \frac{x+1}{x^2+1}$ nad the line y=1 , is

A. ml $-\frac{1}{2}\text{In}2 + \frac{\pi}{4}$

B. $\text{In}2 - \frac{\pi}{4} + 1$

C. $\frac{1}{2}\text{In}2 + \frac{\pi}{4} - 1$

D. In $2 - \frac{\pi}{2} + 1$

Answer: c

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37. The graph of $f(x) = x^2$ and $g(x) = cx^3$ intersect at two points, If the area of the region over the interval $\left[0, \frac{1}{c}\right]$ is equal to $\frac{2}{3}$, then the value of $\left(\frac{1}{c} + \frac{1}{c^2}\right)$ is

A. 20

B. 2

C. 6

D. 12

Answer: c

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38. The area of the region bounded by the curves $y = x^2, y = \left|2 - x^2\right|$ and y=2 which lies to the right of the line x=1, is

A. $\left(\frac{12 - 20\sqrt{3}}{2}\right)$ sq. units

B. $\left(\frac{20 - \sqrt{2}}{3}\right)$ sq. units

C. $\left(\frac{20 - 12\sqrt{2}}{3}\right)$ sq. units

D. $\left(\frac{12 - 20\sqrt{2}}{3}\right)$ sq. units

Answer: c

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39. The area (in sq. units) of the region

$$\{(x, y) : y^2 \leq 2x \text{ and } x^2 + y^2 \leq 4x, x \geq 0, y \leq 0\},$$

is

A. $\pi - \frac{4}{3}$

B. $\pi - \frac{8}{3}$

C. $\pi - \frac{4\sqrt{2}}{3}$

D. $\frac{\pi}{2} - \frac{2\sqrt{2}}{3}$

Answer: B

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40. If the line $x = a$ bisects the area under the curve $y = \frac{1}{x^2}, 1 \leq x \leq 9$, then a is equal to

A. $\frac{4}{9}$

B. $\frac{9}{5}$

C. $\frac{5}{9}$

D. $\frac{9}{4}$

Answer: B

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41. The area (in sq. units) of the region described by

$$A = \{(x, y) : y \geq x^2 - 5x + 4, x + y > 1, y \leq 0\}$$

is

A. $\frac{7}{2}$

B. $\frac{13}{6}$

C. $\frac{17}{6}$

D. $\frac{19}{6}$

Answer: d

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42. Area of region

$$\left\{(x, y) \in R^2 : y \geq \sqrt{|x+3|}, 5y \leq x+9 \leq 15\right\}$$

A. $\frac{1}{6}$

B. $\frac{4}{3}$

C. $\frac{3}{2}$

D. $\frac{5}{3}$

Answer: c

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43. The area (in sqaure units) of the region $\{(x, y) : x \geq 0, x + y \leq 3, x^2 \leq 4y \text{ and } y \leq 1 + \sqrt{x}\}$ is

A. $\frac{59}{12}$

B. $\frac{3}{2}$

C. $\frac{7}{3}$

D. $\frac{5}{2}$

Answer: d

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44. If the line $x = \alpha$ divides the area of region $R = \left\{(x, y) \in R^2 : x^3 \leq y \leq x, 0 \leq x \leq 1\right\}$ into two equal parts, then

A. $0 < \alpha \frac{1}{2}$

B. $\frac{1}{2} < \alpha < 1$

C. $2\alpha^4 - 4\alpha^2 + 1 = 0$

D. $\alpha^2 + 4\alpha^2 - 1 = 0$

Answer: b,c

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Exercise

1. Using integration, find the area bounded by the curves $y = |x - 1|$ and $y = 3 - |x|$.

A. 2

B. 3

C. 4

D. 1

Answer: C

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2. The area of the figure bounded by the curves $y^2 = 2x + 1$ and $x - y - 1 = 0$, is

A. $2/3$

B. $4/3$

C. $8/3$

D. $16/3$

Answer: D

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3. Find the area bounded by the curve $y = 2x - x^2$ and the straight line $y = -x$

A. $9/2$

B. $43/6$

C. $34/6$

D. $\frac{11}{2}$

Answer: A

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4. The area of the region bounded by $y = |x - 1|$ and $y = 1$ is

A. 1

B. 2

C. $1/2$

D. $3/2$

Answer: A

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5. The area bounded by the curve $y = x|x|$, x-axis and the ordinates x=1,x=-1 is given by

A. 0

B. $1/3$

C. $2/3$

D. 1

Answer: C

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6. Area of the region bounded by the curves $y = 2^x, y = 2x - x^2, x = 0$ and $x = 2$ is given by :

A. $\frac{3}{\log 2} - \frac{4}{3}$

B. $\frac{3}{\log 2} + \frac{4}{3}$

C. $2\log 2 - \frac{4}{3}$

D. $2\log^2 - \frac{4}{3}$

Answer: D

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7. Area lying in the first quadrant and bounded by the circle $x^2 + y^2 = 4$ the line $x = \sqrt{3}y$ and x-axis , is

A. π

B. $\pi / 2$

C. $\pi / 3$

D. $\pi / 4$

Answer: C

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8. AOB is the positive quadrant of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ in which $OA=a, OB=b$. Then find the area between the arc AB and the chord AB of the ellipse.

A. $\frac{1}{2}ab(\pi+2)$

B. $\frac{1}{4}ab(\pi-4)$

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

D. none of these

Answer: C

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9. The area of the region lying between the line $x - y + 2 = 0$ and the curve $x = \sqrt{y}$ and $y - a\xi s$, is

A. 9

B. $9/2$

C. $10/3$

D. $5/2$

Answer: C

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10. The area cut off from a parabola by any double ordinate is k time the corresponding rectangle contained by the double ordinate and its distance from the vertex. Find the value of k ?

A. $1/2$

B. $1/3$

C. $2/3$

D. 1

Answer: C

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11. Area between the curve $y = 4 + 3x - x^2$ and x-axis in square units , is

A. $125/3$

B. $125/4$

C. $125/6$

D. 25

Answer: C

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12. If A is the area between the curve $y = \sin x$ and x-axis in the interval $[0, \pi/4]$, then in the same interval , area between the curve $y = \cos x$ and x-axis, is

A. A

B. $\pi/2 - A$

C. $1 - A$

D. $A - 1$

Answer: C

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13. If A is the area lying between the curve $y = \sin x$ and x-axis between x=0 and $x = \pi/2$. Area of the region between the curve $y = \sin 2x$ and x-axis in the same interval is given by

A. $A/2$

B. A

C. $2A$

D. $3/2A$

Answer: B

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14. The area of the loop between the curve $y = a \sin x$ and x-axis is (A) a (B) $2a$ (C) $3a$ (D) none of these

A. a

B. 2a

C. 3a

D. 4a

Answer: B

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15. Area (in square units) of the region bounded by the curve $y^2 = 4x$, y-axis and the line $y = 3$, is

A. 2

B. $9/4$

C. $6\sqrt{3}$

D. none of these

Answer: B

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16. If A_1 is the area of the parabola $y^2 = 4ax$ lying between vertex and the latusrectum and A_2 is the area between the latusrectum and the double ordinate $x = 2a$, then $\frac{A_1}{A_2}$ is equal to

A. $2\sqrt{2} - 1$

B. $\left(2\sqrt{2} + 1\right)/7$

C. $\left(2\sqrt{2} - 1\right)/7$

D. none of these

Answer: B

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17. The area of the region bounded by $y = \sin x$, $y = \cos x$ and x-axis in the first quadrant is

A. $\sqrt{2}(\sqrt{2} - 1)$

B. $\sqrt{3} + 1$

C. $2(\sqrt{3} - 1)$

D. none of these

Answer: A

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18. The area bounded by the curves $y = xe^x, y = xe^{-x}$ and the line $x = 1$ is $\frac{2}{e} sq units$ (b) $1 - \frac{2}{e} sq units$ $\frac{1}{e} sq units$ (d) $1 - \frac{1}{e} sq units$

A. $\frac{2}{e}$

B. $1 - \frac{2}{e}$

C. $\frac{1}{e}$

D. $1 - \frac{1}{e}$

Answer: A

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19. The value of k for which the area of the figure bounded by the curve $y = 8x^2 - x^5$, the straight line $x = 1$ and $x = k$ and the x-axis is equal to $16/3$

A. 2

B. $3\sqrt{8 - \sqrt{17}}$

C. 3

D. -1

Answer: B

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20. The figure into which the curve $y^2 = 6x$ divides the circle $x^2 + y^2 = 16$ are in the ratio

A. $\frac{2}{3}$

B. $\frac{4\pi - \sqrt{3}}{8\pi + \sqrt{3}}$

C. $\frac{4\pi + \sqrt{3}}{8\pi - \sqrt{3}}$

D. none of these

Answer: C

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21. What is the area bounded by the curves $y = e^x, y = e^{-x}$ and the straight line $x = 1$?

A. $e + \frac{1}{e}$

B. $e - \frac{1}{e}$

C. $e + \frac{1}{e} - 2$

D. none of these

Answer: C

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

A. $2\left(\sqrt{2}-1\right)$

B. $\sqrt{2}-1$

C. $\sqrt{2}+1$

D. $\sqrt{2}$

Answer: B

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23. The positive value of the parmeter 'a' for which the area of the figure founded by $y = \sin as, y = 0, x = \pi/a$ and $x = \pi/3a$ is 3, is equal to

A. 2

B. $1/2$

C. $\frac{2+\sqrt{3}}{3}$

D. $3/2$

Answer: B

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24. If area bounded by the curve $y^2 = 4ax$ and $y = mx$ is $a^2/3$, then the value of m, is

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25. The area (in square units) bounded by the curve $y = x^3$, the x-axis and the ordinates at $x = -2$ and $x = 1$ is

A. $17/2$

B. $15/2$

C. $15/4$

D. $17/4$

Answer: D

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26. The area bounded by $y = x^2, y = [x + 1], x \leq 1$ and the y axis is

A. $1/3$

B. $2/3$

C. 1

D. $7/3$

Answer: B

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27. Find the area bounded by the x-axis, part of the curve $y = \left(1 - \frac{8}{x^2}\right)$, and the ordinates at $x = 2 and x = 4$. If the ordinate at $x = a$ divides the area into two equal parts, then find a.

A. $2\sqrt{2}$

B. $\pm 2\sqrt{2}$

C. $\pm\sqrt{2}$

D. ± 2

Answer: B

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28. The area bounded by the curve $y = f(x)$ (where $f(x) \geq 0$), the co-ordinate axes & the line $x = x_1$ is given by $x_1 . e^{x_1}$. Therefore $f(x)$ equals

A. e^x

B. xe^x

C. $xe^x - e^x$

D. $xe^x + e^x$

Answer: C

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29. The area enclosed within the curve $|x| + |y| = 1$, is

A. 1

B. 1.5

C. 2

D. 3

Answer: C

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30. The area of the triangle formed by the positive $x - a\xi s$ and the normal and tangent to the circle $x^2 + y^2 = 4$ at $(1, \sqrt{3})$ is $2\sqrt{3}sq\dot{u}nits$ (b) $3\sqrt{2}sq\dot{u}nits$ $\sqrt{6}sq\dot{u}nits$ (d) none of these

A. $\sqrt{3}$

B. $1/\sqrt{3}$

C. $2\sqrt{3}$

D. $3\sqrt{3}$

Answer: C

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

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

B. $\int_0^3 (3 - 2x - x^2)\,dx$

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

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

Answer: C

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32. The area between the curve $y = 2x^4 - x^2$, the axis, and the ordinates of the two minima of the curve is 11/60 sq. units (b) 7/120 sq. units 1/30 sq. units (d) 7/90 sq. units

A. $7/120$

B. $9/120$

C. $11/120$

D. $13/120$

Answer: A

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33. Find the area bounded by the curve $x^2 = 4y$ and the straight line $x = 4y - 2$.

A. $3/8$

B. $5/8$

C. $7/8$

D. $9/8$

Answer: D

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34. The area of the region bounded by the curve $(a^4)(y^2) = (2a - x)(x^5)$ is to that of the circle whose radius is a, is given by the ratio (a) 4:5 (b) 5 8 (c) 2 3 (d) 3:2.

A. $4:5$

B. $5:8$

C. $2:3$

D. $3:2$

Answer: B

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35. The area between $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ and the straight line $\frac{x}{a}+\frac{y}{b}=1$ is (A) $\frac{1}{2}\pi ab$ (B) $\frac{1}{2}ab$ (C) $\frac{\pi ab}{4}-\frac{ab}{2}$ (D) $\frac{1}{4}ab$

A. $\frac{1}{2}ab$

B. $\frac{1}{2}\pi ab$

C. $\frac{1}{4}ab$

D. $\frac{1}{4}\pi ab-\frac{1}{2}ab$

Answer: D

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36. The area induced between the curves $y = \frac{x^2}{4a}$ and $y = \frac{8a^3}{x^2 + 4a^2}$ is given by

A. $a^2\left(2\pi - \frac{4}{3}\right)$

B. $a^2\left(\pi - \frac{4}{3}\right)$

C. $a^2\left(2\pi + \frac{1}{3}\right)$

D. $a^2\left(\pi + \frac{4}{3}\right)$

Answer: A

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37. The area cut off from a parabola by any double ordinate is k time the corresponding rectangle contained by the double ordinate and its distance from the vertex. Find the value of k ?

A. $2/3$

B. $3/2$

C. $1/3$

D. 3

Answer: A

Watch Video Solution

38. Area bounded by the curve $y = \sin x$ between .

$x = 0$ and $x = 2\pi$ is

A. 2π

B. 2π

C. 4π

D. π

Answer: C

Watch Video Solution

39. The slope of the tangent to a curve $y = f(x)$ at $(x, f(x))$ is $2x + 1$. If the curve passes through the point $(1, 2)$ then the area of the region bounded by the curve, the x-axis and the line $x = 1$ is (A) $\frac{5}{6}$ (B) $\frac{6}{5}$ (C) $\frac{1}{6}$ (D) 1

A. $5/6$

B. $6/5$

C. $1/6$

D. 6

Answer: A

Watch Video Solution

40. The area of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is

A. πab

B. $\frac{\pi}{4}(a^2 + b^2)$

C. $\pi(a + b)$

D. $\pi a^2 b^2$

Answer: A

Watch Video Solution

41. Smaller area enclosed by the circle $x^2 + y^2 = 4$ and line x+y=2 is

A. $2(\pi - 2)$

B. $\pi - 2$

C. $2\pi - 1$

D. $\pi - 1$

Answer: B

Watch Video Solution

42. The area cut off a parabola $4y = 3x^2$ by the straight line $2y = 3x + 12$ in square units, is

A. 16

B. 41

C. 27

D. 36

Answer: B

Watch Video Solution

43. Find the area of the region bounded by the parabola $x^2 = 4y\backslash$ and the line $x = 4y - 2$

A. $9/8$

B. $9/4$

C. $9/2$

D. $9/7$

Answer: A

Watch Video Solution

44. Find the area lying in the first quadrant and bounded by the curve $y = x^3$ and the line $y = 4x$.

A. 2

B. 3

C. 4

D. 5

Answer: C

Watch Video Solution

45. The area in square units of the region bounded by the curve $x^2 = 4y$, the line x=2 and the x-axis, is

A. 1

B. $2/3$

C. $4/3$

D. $8/3$

Answer: B

Watch Video Solution

46. The area bounded by the x-axis and the curve $y = 4x - x^2 - 3$ is

A. $4/3$

B. $3/4$

C. 7

D. $3/2$

Answer: A

Watch Video Solution

47. Find the area enclosed between the parabola $y^2 = 4ax$ and the line $y = mx$.

A. $\frac{5a^2}{3}$

B. $\frac{8a^2}{3m^3}$

C. $\frac{7a^2}{4m^2}$

D. $\frac{3a^2}{5m}$

Answer: B

Watch Video Solution

48. The area bounded by $y = \tan x, y = \cot x,$ X-axis in $0 \leq x \leq \frac{\pi}{2}$ is

A. $\log 2$

B. $\frac{1}{2}\log 2$

C. $2 \log \left(\frac{1}{\sqrt{2}}\right)$

D. $\frac{3}{2}\log 2$

Answer: A

Watch Video Solution

49. Area lying between the curves $y^2 = 4x$ and $y = 2x$ is (A) $\frac{2}{3}$ (B) $\frac{1}{3}$ (C) $\frac{1}{4}$ (D) $\frac{3}{4}$

A. $2/3$

B. $1/3$

C. $1/4$

D. $1/2$

Answer: B

Watch Video Solution

50. Area common to the circle $x^2 + y^2 = 64$ and the parabola $y^2 = 4x$ is

A. $\frac{16}{3}(4\pi + \sqrt{3})$

B. $\frac{16}{3}(8\pi - \sqrt{3})$

C. $\frac{16}{3}(4\pi - \sqrt{3})$

D. none of these

Answer: B

Watch Video Solution

51. The area of the figure bounded by the curve $|y| = 1 - x^2,$ is

A. $2/3$

B. $4/3$

C. $8/3$

D. $-5/3$

Answer: C

Watch Video Solution

52. Find the area of the figure bounded by the parabolas $x = -2y^2, x = 1 - 3y^2$.

A. $8/3$

B. $6/3$

C. $4/3$

D. $2/3$

Answer: C

Watch Video Solution

53. The area bounded by $y = x|\sin x|$ and x - axis between $x = 0, x = 2\pi$ is

A. 2π

B. 3π

C. 4π

D. 5π

Answer: C

Watch Video Solution

54. The area of the region bouned by the curve $y = 2x - x^2$ and the line $y = x$ is

A. $1/2$

B. $1/3$

C. $1/4$

D. $1/6$

Answer: D

Watch Video Solution

55. Find the area bounded by the curve $y = (x-1)(x-2)(x-3)$ lying between the ordinates $x = 0 and x = 3.$

A. $9/4$

B. $\frac{11}{4}$

C. $11/2$

D. $7/4$

Answer: B

Watch Video Solution

56. Area common to the curves $y = \sqrt{x}$ and $x = \sqrt{y}$ is (A) 1 (B) $\frac{2}{3}$ (C) $\frac{1}{3}$ (D) none of these

A. 1

B. $2/3$

C. $1/3$

D. $4/3$

Answer: C

Watch Video Solution

57. The equation of the common tangent to the parabolas $y^2 = 4ax$ and $x^2 = 4by$ is given by

A. (8/3) ab

B. (16/3) ab

C. (4/3) ab

D. (5/3) ab

Answer: B

Watch Video Solution

58. Area (in square units) of the region bounded by $[x]^2 = [y]^2$ for $x \in [1, 5]$,(where $[\cdot]$ denotes the greatest integer function) is

A. 4

B. 8

C. 5

D. 10

Answer: B

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59. If denotes the area bounded by $f(x) = \left|\frac{\sin x + \cos x}{x}\right|$ x-axis , $x = \pi$ and $x = 3x$, then

A. $1 < A < 2$

B. $0 < A < 2$

C. $2 < A < 3$

D. none of these

Answer: D

View Text Solution

60. Find the area of the region bounded by the curves $y = x^2$ and $y = \sec^{-1}[-\sin^2 x]$, where [.] denotes G.I.F.

A. $\frac{1}{3}(4-\pi)^{3/2}$

B. $\left(8(4-\pi)^{3/2}\right.$

C. $\frac{8}{3}(4-\pi)^{3/2}$

D. $\frac{8}{3}(4-\pi)^{1/2}$

Answer: C

Watch Video Solution

61. The area of the region included between the regions satisfying $\min(|x|, |y|) \geq 1$ and $x^2 + y^2 \leq 5$ is

A. $\frac{5}{2}\left(\frac{\sin^{-1}(2)}{\sqrt{5}} - \frac{\sin^{-1}(1)}{\sqrt{5}}\right) - 4$

B. $10\left(\frac{\sin^{-1}(2)}{\sqrt{5}} - \frac{\sin^{-1}(1)}{\sqrt{5}}\right) - 4$

C. $\frac{2}{5}\left(\frac{\sin^{-1}(2)}{\sqrt{5}} - \frac{\sin^{-1}(1)}{\sqrt{5}}\right) - 4$

D. $15\left(\frac{\sin^{-1}(2)}{\sqrt{5}} - \frac{\sin^{-1}(1)}{\sqrt{5}}\right) - 4$

Answer: B

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62. If $f(x) \geq 0$ all $x \in (0, 2)$ and y=f(x) makes positive intercepts of 2 and 1 unit on x and y axes respectively and enclose an area of $\frac{3}{4}$ sq. units with axes, then $\int_0^2 x f'(x) dx$ is

A. $\frac{3}{4}$

B. 1

C. $\frac{5}{4}$

D. $-\frac{3}{4}$

Answer: D

Watch Video Solution

Chapter Test

1. Area bounded by the curves $y = |x - 1|, y = 0$ and $|x| = 2$ is (A) 4 (B) 8 (C) 5 (D) 9

A. 4

B. 5

C. 3

D. 6

Answer: B

Watch Video Solution

2. The area inside the parabola $5x^2 - y = 0$ but outside the parabola $2x^2 - y + 9 = 0$ is $12\sqrt{3}sq\dot{u}nits$ $6\sqrt{3}sq\dot{u}nits$ $8\sqrt{3}sq\dot{u}nits$ (d) $4\sqrt{3}sq\dot{u}nits$

A. $12\sqrt{3}$

B. $6\sqrt{3}$

C. $8\sqrt{3}$

D. $4\sqrt{3}$

Answer: A

Watch Video Solution

3. The area bounded by the curve $y^2(2a - x) = x^3$ and the line x = 2a is

A. $3\pi a^2$

B. $\frac{3\pi a^2}{2}$

C. $\frac{3\pi a^2}{4}$

D. $\frac{\pi a^2}{4}$

Answer: A

Watch Video Solution

4. Area bounded by the curve $xy^2 = a^2(a - x)$ and the y-axis is

A. $\pi a^2 / 2$

B. πa^2

C. $3\pi a^2$

D. $2\pi a^2$

Answer: B

Watch Video Solution

5. The area of the loop of the curve $ay^2 = x^2(a - x)$ is $4a^2 sq\dot{u}nits$ (b) $\frac{8a^2}{15} sq\dot{u}nits$ $\frac{16a^2}{9} sq\dot{u}nits$ (d) None of these

A. $\frac{4a^2}{15}$

B. $\frac{8}{15}a^2$

C. $\frac{16}{15}a^2$

D. $\frac{32}{5}a^2$

Answer: B

Watch Video Solution

6. Find the area common to the circle $x^2 + y^2 = 16a^2$ and the parabola $y^2 = 6ax, a > 0.$

A. $\frac{4a^2}{3}\left(4\pi - \sqrt{3}\right)$

B. $\frac{4a^2}{3}(8\pi - 3)$

C. $\frac{2a^2}{3}\left(4\pi + \sqrt{3}\right)$

D. none of these

Answer: C

Watch Video Solution

7. The line $y = mx$ bisects the area enclosed by the curve $y = 1 + 4x - x^2$ and the lines $x = 0, x = \frac{3}{2} and y = 0.$ Then the value of m is

A. $13/8$

B. $13/32$

C. $13/6$

D. $13/14$

Answer: C

Watch Video Solution

8. The area between the curve $y = x \sin x$ and x-axis where $o \leq x \leq 2\pi$, is

A. 2π

B. 3π

C. 4π

D. π

Answer: C

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9. The area bounded by the curves $y = e^x$, $y = e^{-x}$ and $y = 2$, is

A. $\log\left(\frac{16}{e}\right)$

B. log(4/e)

C. 2log(4/e)

D. log(8/e)

Answer: C

Watch Video Solution

10. The area bounded by the curve $x = a\cos^3 t, , y = a\sin^3 t,$ is :

A. $\frac{3\pi a^2}{8}$

B. $\frac{3\pi a^2}{16}$

C. $\frac{3\pi a^2}{32}$

D. $3\pi a^2$

Answer: A

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11. If A_1 is the area enclosed by the curve $xy = 1$, x-axis and the ordinates $x = 1, x = 2$, and A_2 is the area enclosed by the curve $xy = 1$, x-axis and the ordinates $x = 2, x = 4$, then

A. $A_1 = 2A_2$

B. $A_2 = 2A_1$

C. $A_2 = 3A_1$

D. $A_1 = A_2$

Answer: D

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12. If area bounded by the curve $y^2 = 4ax$ and $y = mx$ is $a^2/3$, then the value of m, is

A. 1

B. 2

C. 3

D. $\sqrt{3}$

Answer: B

Watch Video Solution

13. The value of a for which the area between the curves $y^2 = 4ax$ and $x^2 = 4ay$ is 1 unit is

A. $\sqrt{3}$

B. 4

C. $4\sqrt{3}$

D. $\sqrt{3}/4$

Answer: D

Watch Video Solution

14. The area bounded by the curves $y = f(x)$, the x-axis, and the ordinates $x = 1 and x = b$ is $(b-1)\sin(3b+4)$. Then $f(x)$ is.

$(x-1)\cos(3x+4)$ $\sin(3x+4)$

$\sin(3x+4)+3(x-1)\cos(3x+4)$ None of these

A. $(x-1)\cos(3x+4)$

B. $\sin(3x+4)$

C. $\sin(3x+4)+3(x-1)$

D. none of these

Answer: C

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15. The area bounded by the curve $y = \sin 2x,$ axis and $y = 1,$ is

A. 1

B. $1/4$

C. $\pi/4$

D. $\pi/4 - 1/2$

Answer: D

Watch Video Solution

16. The area between the curve $x = -2y^2$ and $x = 1 - 3y^2$, is

A. $4/3$

B. $3/4$

C. $3/2$

D. $2/3$

Answer: A

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17. The area between the curves $y = \cos x,$ x-axis and the line $y = x + 1,$ is

A. $1/2$

B. 1

C. 3

D. 2

Answer: A

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18. The area bounded by $y = x^2 + 1$ oand the tangents to it drawn from the origin, is

A. $8/2$ sq. units

B. $1/3$ sq. units

C. $2/3$ sq. units

D. none of these

Answer: C

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19. The positive value of the parmeter 'a' for which the area of the figure bounded by $y = \sin as, y = 0, x = \pi/a$ and $x = \pi/3a$ is 3, is equal to

A. 2

B. $1/2$

C. $\frac{2+\sqrt{3}}{3}$

D. $\sqrt{3}$

Answer: B

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20. The area in square units bounded by the curves $y = x^3, y = x^2$ and the ordinates $x = 1, x = 2$ is

A. $17/12$

B. $12/13$

C. $2/7$

D. $7/2$

Answer: A

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21. The area bounded by the curve $y^2 = x$ and the ordinate $x = 36$ is divided in the ratio $1:7$ by the ordinate x=a. Then a=

A. 8

B. 9

C. 7

D. 0

Answer: B

Watch Video Solution

22. The area contained between the x-axis and one area of the curve $y = \cos 3x,$ is

A. $1/3$

B. $2/3$

C. $2/7$

D. $2/5$

Answer: B

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23. 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. $5/3$

Answer: B

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24. The area of the figure bounded by $y = e^{x-1}, y = 0, x = 0$ and $x = 2$ is

A. < 2

B. > 2

C. $= 2$

D. none of these

Answer: B

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25. The area of the region on place bounded by max $(|x|, |y|) \leq \frac{1}{2}$ is

A. $1/2 + \ln 2$

B. $3 + \ln 2$

C. $31/4$

D. $1 + 2\ln 2$

Answer: B

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26. The area of the closed figure bounded by $y = \frac{x^2}{2} - 2x + 2$ and the tangents to it at $\left(1, \frac{1}{2}\right) and (4, 2)$ is $\frac{9}{8} sq units$ (b) $\frac{3}{8} sq units$ $\frac{3}{2} sq units$ (d) $\frac{9}{4} sq units$

A. $9/8$

B. $3/8$

C. $3/2$

D. $9/4$

Answer: A

Watch Video Solution

27. The area of the closed figure bounded by $y = 1/\cos^2 x, x = 0, y = 0$ and $x = \pi/4,$ is

A. $\pi/4$

B. $1 + \pi/4$

C. 1

D. 2

Answer: C

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28. The area (in square units) of the closed figure bounded by $x = -1, x = 2$ and $y = \begin{cases} -x^2 + 2, x \leq 1 \\ 2x - 1, x > 1 \end{cases}$ and the abscissa axis, is

A. $16/3$

B. $13/3$

C. $13/3$

D. $7/3$

Answer: A

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

A. $\frac{4 + 3\ln 3}{2}$

B. 2+3ln(3sqrt(3)/4)

C. $\frac{3}{2}\ln 3$

D. $\frac{1}{2} + \ln 3$

Answer: B

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30. The area of the region bounded by $x^2 + y^2 - 2y - 3 = 0$ and $y = |x| + 1,$ is

A. π

B. 2π

C. 4π

D. $\pi / 2$

Answer: A

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31. The area of the region bounded by $y = |x - 1|$ and $y = 3 - |x|$, is

A. 2

B. 3

C. 4

D. 1

Answer: C

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32. Find the area of the closed figure bounded by the curves $y = \sqrt{x}, y = \sqrt{4 - 3x} and y = 0$

A. $4/9$

B. $8/9$

C. $19/9$

D. $5/9$

Answer: B

Watch Video Solution

33. The area of the closed figure bounded by the curves

$y = \cos x, y = 1 + \frac{2}{\pi}x$ and $x = \pi/2,$ is

A. $\frac{\pi + 4}{4}$

B. $\frac{3\pi - 4}{4}$

C. $\frac{3\pi}{4}$

D. $\frac{\pi}{4}$

Answer: B

Watch Video Solution

34. For which of the following values of m is the area of the regions bounded by the curve $y = x - x^2$ and the line $y = mx$ equal $\frac{9}{2}$? -4 (b) -2 (c) 2 (d) 4

A. -4.4

B. $-2, 2$

C. $2, 4$

D. $-2, 3$

Answer: B

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35. The area bound by the curve $y = \sec x,$ then x-axis and the lines $x = 0$ and $x = \pi/4,$ is

A. $\log\left(\sqrt{2}+1\right)$

B. $\log\left(\sqrt{2}-1\right)$

C. $\frac{1}{2}\log 2$

D. $\sqrt{2}$

Answer: A

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36. The area bounded by the parabola $y^2 = 8x,$ the x-axis and the latusrectum, is

A. $\frac{16}{3}$

B. $\frac{23}{3}$

C. $\frac{32}{3}$

D. $\frac{16\sqrt{2}}{3}$

Answer: C

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37. The area (in square units) bounded by the curve $y^2 = 8x$ and $x^2 = 8y$, is

A. `64(3*sqrt(2)-1/3)

B. $\frac{3}{16}$

C. $\frac{14}{3}$

D. $\frac{3}{14}$

Answer: A

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38. If the area bounded by the curve y=f(x), x-axis and the ordinates x=1 and x=b is (b-1) $\sin(3b+4)$, then-

A. $(x-1)\cos(3x+4)$

B. $\sin(3x+4)$

C. $\sin(3x+4)+3(x-1)\cos(3x+4)$

D. none of these

Answer: C

Watch Video Solution

39. The area in square units of the region bounded by the curve $x^2 = 4y$, the line x=2 and the x-axis, is

A. 1

B. $2/3$

C. $4/3$

D. $8/3$

Answer: B

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40. The area enclosed between the curve $y^2(2a-x)=x^3$ and the line $x=2$ above the $x-a\xi s$ is $\pi a^2 sq\dot{u}nits$ (b) $\frac{3\pi a^2}{2} sq\dot{u}nits$ $2\pi a^2 sq\dot{u}nits$ (d) $3\pi a^2 sq\dot{u}nits$

A. πa^2

B. $3/2\pi a^2$

C. $2\pi a^2$

D. $3\pi a^2$

Answer: B

Watch Video Solution

41. The area bounded by the curve $y = 4x - x^2$ and x-axis is (A) $\frac{30}{7}$ sq. units (B) $\frac{31}{7}$ sq. units (C) $\frac{32}{3}$ sq. units (D) $\frac{34}{3}$ sq. units

A. $\frac{30}{7}$

B. $\frac{31}{7}$

C. $\frac{32}{3}$

D. $\frac{34}{3}$

Answer: C

Watch Video Solution

42. Area bounded by the parabola $y^2 = x$ and the line $2y = x$ is (A) $\frac{4}{3}$ (B) 1 (C) $\frac{2}{3}$ (D) $\frac{1}{3}$

A. $4/3$

B. 1

C. $2/3$

D. $1/3$

Answer: A

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43. Area between the x-axis and the curve $y = \cos x$, when $0 \leq x \leq 2\pi$ is

A. 0

B. 2

C. 3

D. 4

Answer: D

Watch Video Solution

44. The ratio of the areas between the curves $y = \cos x$ and $y = \cos 2x$ and x-axis from $x = 0$ to $x = \frac{\pi}{3}$ is (A) $1:3$ (B) $2:1$ (C) $\sqrt{3}:1$ (D) none of these

A. $1:2$

B. $2:1$

C. $\sqrt{3}:1$

D. none of these

Answer: B

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45. Find the area bounded by the parabola $y = x^2 + 1$ and the straight line $x + y = 3$.

A. $\frac{45}{7}$

B. $\frac{3}{2}$

C. $\frac{32}{3}$

D. $\frac{3}{32}$

Answer: D

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46. The area common to the parabolas $y = 2x^2$ and $y = x^2 + 4$ (in square units) is (A) $\frac{2}{3}$ (B) $\frac{3}{2}$ (C) $\frac{32}{3}$ (D) $\frac{3}{32}$

A. $\frac{2}{3}$

B. $\frac{3}{2}$

C. $\frac{32}{3}$

D. $\frac{3}{32}$

Answer: C

Watch Video Solution

47. The area of the region $\{(x, y) : x^2 + y^2 \leq 1 \leq x + y\}$, is

A. $\frac{\pi}{5}$

B. $\frac{\pi}{4}$

C. $\frac{\pi^2}{4}$

D. $\frac{\pi}{4} - \frac{1}{2}$

Answer: D

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48. Examples: Find the area bounded by the parabola $y^2 = 4ax$ and its latus rectum.

A. 0

B. $\frac{4}{3}a^2$

C. $\frac{8}{3}a^2$

D. $\frac{a^2}{3}$

Answer: C

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49. The area bounded by the curve $y = x^4 - 2x^3 + x^2 + 3$ with x-axis and ordinates corresponding to the minima of y, is

A. 1

B. $\frac{91}{30}$

C. $\frac{30}{9}$

D. 4

Answer: B

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50. Find the area common to two parabolas $x^2 = 4ay$ and $y^2 = 4ax$, using integration.

A. $\frac{8a^3}{3}$

B. $\frac{16a^2}{3}$

C. $\frac{32a^2}{3}$

D. $\frac{64a^2}{3}$

Answer: B

Watch Video Solution

51. The area (in square units) bounded by curves y=sinx between the ordinates x=0, $x = \pi$ and the x-axis , is

A. 2

B. 4

C. 3

D. 1

Answer: A

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52. The area of the region bounded by the parabola $(y-2)^2 = x-1$, the tangent to the parabola at the point $(2, 3)$ and the x-axis is

A. 3

B. 6

C. 7

D. none of these

Answer: C

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53. Find the area enclosed between the curves: $y = \log_e(x + e), x = \log_e\left(\frac{1}{y}\right)$ & the x-axis.

A. 2

B. 1

C. 4

D. none of these

Answer: A

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54. Find the area of the region formed by $x^2 + y^2 - 6x - 4y + 12 \leq 0. y \leq x$ and $x \leq \frac{5}{2}$.

A. $\frac{\pi}{6} - \frac{\sqrt{3}+1}{8}$

B. $\frac{\pi}{6} + \frac{\sqrt{3}+1}{8}$

C. $\frac{\pi}{6} - \frac{\sqrt{3}-1}{8}$

D. none of these

Answer: C

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55. Let A_n be the area bounded by the curve $y = (\tan x)^n$ and the lines $x = 0, y = 0,$ and $x = \frac{\pi}{4}.$ Prove that for $n > 2, A_n + A_{n-2} = \frac{1}{n-1}$ and deduce `1/(2n+2)

A. $A_n + A_{n-2} = \frac{1}{n-1}$

B. $A_n + A_{n-2} < \frac{1}{n-1}$

C. $A_n - A_{n-2} = \frac{1}{n-1}$

D. none of these

Answer: A

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56. The area bounded by the parabola $y^2 = x$, straight line $y = 4$ and y-axis is

A. $\frac{3}{32}$

B. $\frac{64}{3}$

C. $\frac{33}{2}$

D. $\frac{16}{3}$

Answer: B

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57. The area (in square units), bounded by $y = 2 - x^2$ and $x + y = 0$, is

A. $\frac{7}{2}$ sq. units

B. $\frac{9}{2}$ sq. units

C. 9 sq. units

D. none of these

Answer: B

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58. The area bounded by the curve $y = \log_e x$, the x-axis and the line $x = e$ is (A) e sq. units (B) 1 sq. unit (C) $\left(1 - \frac{1}{e}\right)$ sq. units (D) $\left(1 + \frac{1}{e}\right)$ sq. units

A. e

B. 1

C. $1 - \frac{1}{e}$

D. $1 + \frac{1}{e}$

Answer: B

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59. Find the area included between the curves $x^2 = 4y$ and $y^2 = 4x$.

A. $4/3$

B. $1/3$

C. $16/3$

D. $8/3$

Answer: C

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60. If the area above the x-axis, bounded by the curves $y = 2^{kx}$ and x = 0, and x = 2 is $\frac{3}{\log_e(2)}$, then the value of k is

A. $1/2$

B. 1

C. -1

D. 2

Answer: B

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