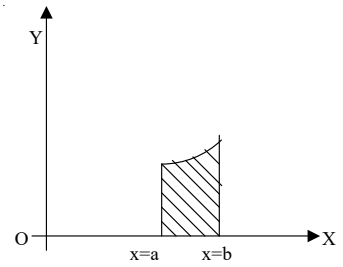
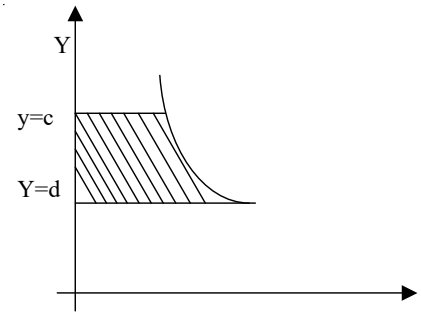
NUMERICAL INTEGRATION & AREAS

AREA OF PLANE CURVES

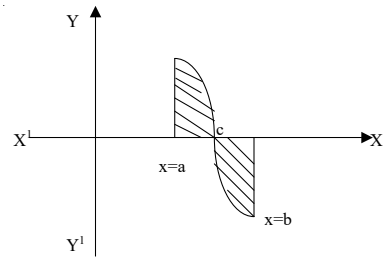
- If $y=f(x)$ is continuous in $[a,b]$ then the area bounded by the curve $y=f(x)$, the x-axis and $x=a, x=b(a<b)$ is given by $\int_a^b |f(x)|dx$



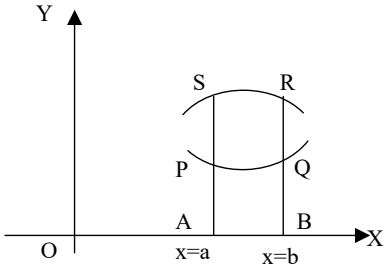
- The area bounded by the curve $x=f(y)$, the axis of y and two abscissae y=c and y=d is given by $\int_c^d |f(y)|dy$



- Let $f(x)\geq 0$ in [a,c] and $f(x)\leq 0$ in [c,b], so that the curve crosses the x-axis at c. Then the curve lies partly above the x-axis and partly below the x-axis. Hence required area is $\int_a^b |f(x)|dx = \int_a^c f(x)dx + \int_c^b -f(x)dx$



- Let the area enclosed between the two curves $y=f_1(x)$ and $y=f_2(x)$ and ordinates x=a, x=b(b>a) is denoted by R. Then the area of the region R=Area of the region ASRB-Area of the region. $APQB = \int_a^b f_2(x)dx - \int_a^b f_1(x)dx$.



- The area of one arc of the curve $y=\sin ax$ and x-axis is 2/a square units.
- The area of one arc of the curve $y=\cos ax$ and x-axis is 2/a square units.
- The area of the triangle formed by the lines $y=m_1x+c_1, y=m_2x+c_2, y=m_3x+c_3$ is $\frac{1}{2}\left|\sum \frac{(c_1-c_2)^2}{m_1-m_2}\right|$ sq. units.
- The area of the parallelogram formed by $a_1x+b_1y+c_1=0$, $a_1x+b_1y+d_1=0$, $a_2x+b_2y+c_2=0, a_2x+b_2y+d_2=0$ is $\left|\frac{(c_1-d_1)(c_2-d_2)}{a_1b_2-a_2b_1}\right|$ sq. units.
- The area of rhombus formed by $ax\pm by\pm c=0$ is $\frac{2c^2}{|ab|}$ sq. units
- The area of the triangle formed by the tangent and normal at $P(x_1,y_1)$ and x-axis (m is the slope of tangent) is $\frac{1}{2}y_1^2\left|m+\frac{1}{m}\right|$ **sq. units.**
- The area of the triangle formed by the tangent and normal at $P(x_1,y_1)$ and y-axis (m is the

slope of tangent) is $\frac{1}{2}x_1^2\left|m+\frac{1}{m}\right|$ sq. units.

- The area of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ is πab sq. units.
- The area between the parabolas $y^2=4ax$ and $x^2=4by$ **is** $\frac{16ab}{3}$ **sq. units.**
- The area between the parabola $y^2=4ax$ and the line $y=mx$ is $\frac{8a^2}{3m^3}$ sq. units.
- The area between the parabola $y^2=4ax$ and its latusrectum is $\frac{8a^2}{3}$ sq. units.
- The area enclosed by the curve $\left(\frac{x}{a}\right)^{2/3}+\left(\frac{y}{b}\right)^{2/3}=1$ is $\frac{3\pi ab}{8}$ sq. units.
- The area of the asteroid $x^{2/3}+y^{2/3}=a^{2/3}$ is $\frac{3\pi a^2}{8}$ sq. units.
- The area bounded by $\sqrt{x}+\sqrt{y}=\sqrt{a}$ and the co-ordinate axes is $\frac{a^2}{6}$ sq. units.
- The area enclosed between one arc of the cycloid $x=a(\theta+\sin\theta)$, $y=a(1-\cos\theta)$ and its base is $3\pi a^2$ sq. units.
- **Trapezoidal Rule:** Let $y=f(x)$ be given function and for equally spaced $(n+1)$ arguments $x=a,a+h,a+2h,.....+a+(n-1)h,a+nh=b$ and $y_0=f(x_0)$, $y_1=f(x_1)$, ..., $y_{n-1}=f(x_{n-1})$, $y_n=f(x_n)$ **in [a,b]** then $\int_a^b y\,dx=\frac{h}{2}\left[(y_0+y_n)+2(y_1+y_2+....+y_{n-1})\right]$.
- **Simpson's Rule:** Let $y=f(x)$ be given function and for equally spaced (n+1) arguments $x=a,a+h,a+2h,....+a+(n-1)h,a+nh=b$ and $y_0=f(x_0)$, $y_1=f(x_1)$, ..., $y_{n-1}=f(x_{n-1})$, $y_n=f(x_n)$ **here [a,b]** is divided into n subintervals where n is even then $\int_a^b y\,dx=$.

$$\frac{h}{3}[(y_0+y_n)+4(y_1+y_3+....+y_{n-1})+2(y_2+y_4+....+y_{n-2})]$$

PROBLEMS:

1. A curve is passing through the points (1,2), (1.5,2.4), (2,2.7), (2.5,2.8), (3,3) then the area bounded by the curve, X-axis and x=1, x=3 using Simpson's rule is
   1. 5 2. 5.1 3. 5.2 4. 5.4
2. If the graph of $y=f(x)$ passes through (0,0), (0.5,0.19), (1,0.34), (1.5,0.43),(2,0.47) then $\int_0^2 f(x)dx$ by Simpson's rule is
   1. 0.605 2. 0.61 3. 0.601 4. 0.615
3. The interval [1,7] is divided into 6 equal intervals and the value of $\int_1^7(x^2+x+1)dx$ using Trapezoidal and Simpson's rules are respectively Δ_1 and Δ_2 then
   1. $\Delta_1=\Delta_2$ 2. $\Delta_1>\Delta_2$
   3. $\Delta_1<\Delta_2$ 4. $\Delta_1-\Delta_2=2$
4. Using Simpson's rule, by taking 4 equal parts, the value of $\int_1^5\frac{1}{x}dx=$
   1. 1.58 2. 1.62 3. 1.75 4. 2.3
5. Using Simpson's rule, by taking 4 equal parts, the value of $\int_1^5(2x-1)dx=$
   1. 22 2. 20.7 3. 20 4. 19.7
6. Using Trapezoidal rule, by taking 4 equal intervals, the value of $\int_1^5(2x+1)dx=$
   1. 5 2. 8 3. 28 4. 28.2
7. Using Trapezoidal rule, by taking 3 equal intervals , the value of $\int_1^4 3x^2dx=$
   1. 24.5 2. 34.5 3. 64.5 4. 74.5

8. If $\log_{10}100=2, \log_{10}101=2.004,$ $\log_{10}102=2.0086, \log_{10}103=2.0128$ then $\int_{100}^{103}\log_{10}x\,dx$ by Trapezoidal rule is
1. 6.0193 2. 6.0019
3. 6.1093 4. 6.11993

9. A river is 80 meters wide. The depth "d" in meters at a distance x meters from one bank to other bank is given by the following table.

x meters:	0	10	20	30
d meters:	0	4	7	9
	40	50	60	70	80
	12	15	14	8	0

The approximate area of cross section using Simpson's rule is
1. 700 sq. mts. 2. 800 sq. mts
3. 720 sq. mts 4. 740 sq. mts.

10. A curve is drawn to pass through the following points.

x :1	1.5	2	2.5	3	3.5	4
y: 2	2.4	2.7	2.8	3	2.6	2.1

Using Simpson's rule the approximate area bounded by the curve, the X-axis and the lines x=1 and x=4 is
1. 6.78 sq. units 2. 7.78 sq. units
3. 7.73 sq. units 4. 7.68 sq. units

11. The values of f(x) at the nodal points are

x:	0	0.25	0.5	0.75	1
f(x):	1	0.8	0.67	0.57	0.5

The approximate area bounded by the curve, the X-axis and the lines x=0, x=1 using Simpson's rule is
1. 0.693 sq. units 2. 0.793 sq. units
3. 0.0693 sq. units 4. 0.593 sq. units

12. The velocity of a train which starts from rest is given by the following table, the time being recorded in minutes from start and speed in KMPH

Minute:2	4	6	8	10	
KMPH: 10	18	25	29	32	
	12	14	16	18	20
	20	11	5	2	0

The approximate total distance in 20 minutes run by the train by Simpson's rule
1. 5.155 2. 5.05 3. 5 4. 4.99

13. Given that $e^0=1, e=2.72, e^2=7.39,$ $e^3=20.09, e^4=54.6$. The approximate area bounded by the curve $y=e^x$ between lines x=0 to x=4 using Simpson's rule is
1. 53.873 2. 55 3. 54.5 4. 54

14. If $f(22)=0.39, f(23)=0.41,$ $f(24)=0.43, f(25)=0.44$ and $f(26)=0.46$ then $\int_{22}^{26}f(x)\,dx$ Using Simpson's rule is
1. 1.6 2. 1.7 3. 1.8 4. 1.9

15. The values of $f(x)$ for x=0,1,2,3,4,5,6 are given by 2,4,10,16,20,24,38 respectively then $\int_0^6 f(x)\,dx$ by Using Simpson's rule is
1. 90 2. 91 3. 92 4. 93

16. In Trapezoidal rule, the curve $y=f(x)$ between two successive ordinates is approximated as
1. straight line 2. parabola
3. cubic parabola 4. arc of a circle

17. Using simpson's rule the part of the curve $y=f(x)$ between 3 successive ordinates is assumed as
1. straight line 2. parabola
3. cubic parabola 4. arc of a circle

KEY

1-10	**3**	**1**	**2**	**2**	**3**
	3	**3**	**1**	**1**	**2**
11-17	**1**	**1**	**1**	**2**	**3**
	1	**2**			

LEVEL - I

1. The area enclosed by the curve $|x|+|y|=1$ in sq. units is ….
1. 2 2. 4 3. 1 4. 1/2

2. The area of the region bounded by the curve $y=x^3$, x-axis and the ordinates x=1, x=4 is
1. $\frac{255}{4}$ sq. units 2. $\frac{225}{2}$ sq. units
3. $\frac{125}{3}$ sq. units 4. $\frac{124}{3}$ sq. units

3. the area of the region bounded by the curve $y = x^2$, x-axis and the ordinates x=0, x=2 is

1. $\frac{8}{3}$ sq. units 2. $\frac{3}{8}$ sq. units
3. 24 sq. units 4. 25 sq. units

4. The area bounded by the parabola $y = 4x^2$, X-axis between the ordinates x=2, x=4is

1. $\frac{224}{3}$ sq. units 2. $\frac{125}{3}$ sq. units
3. $\frac{122}{3}$ sq. units 4. $\frac{121}{3}$ sq. units

5. The area of the region bounded by $y = [x]$ and the ordinates x=1, x=2 in sq. units is

1. 2 2. 1 3. 4 4. 1/2

6. The area bounded by the curve $x^2 = 4y$ and the line x=2 in sq. units is

1. 1 2. 2/3 3. 3/2 4. 2

7. The area bounded by the curve $y = 1 + \frac{8}{x^2}$ with X-axis and ordinates at x=2 and x=4 in sq. units is

1. 4 2. 2 3. ½ 4. 5

8. The area bounded by the parabola $y = 4 - x^2$ and X-axis in sq . units is

1. 32/3 2. 16/3 3. 8/3 4. 1/3

9. The area bounded by the X-axis and the curve $y = 4x - x^2 - 3$ in sq. units is

1. 1/3 2. 2/3 3. 4/3 4. 7/3

10. The area of the region bounded by the curve $y^2 = 4ax$ and the line x=a is

1. $\frac{8a^2}{3}$ sq. units 2. $\frac{4a^2}{3}$ sq. units
3. $\frac{a^2}{3}$ sq. units 4. $\frac{16a^2}{3}$ sq. units

11. The area bounded by the curve $y = 7x - 10 - x^2$ with X-axis is

1. 9 sq. units 2. 3 sq. units
3. 9/2 sq. units 4. 4 sq. units

12. The area bounded by any one of the arc of the curve $y = \sin x$ in sq. units with X axis

1. 2 sq. units 2. 1 sq. unit
3. 2/3 sq. unit 4. ½ sq. units

13. The area bounded by the curve $y = \cos x$ in $[0, \pi]$ is

1. 1 sq. unit 2. 2 sq. unit
3. 3/2 sq. units 4. 5 sq. units

14. The area bounded by the ellipse $3x^2 + 2y^2 = 6$ with the co-ordinate axes in sq. units is

1. $\sqrt{6}\pi$ 2. $\sqrt{8}\pi$ 3. $\sqrt{12}\pi$ 4. $\sqrt{3}\pi$

15. The area bounded by the ellipse $b^2x^2 + a^2y^2 = a^2b^2$ in the first quadrant in sq. units is

1. πab 2. $\frac{\pi ab}{2}$ 3. $\frac{\pi ab}{4}$ 4. $\frac{\pi ab}{3}$

16. The area bounded by the parabola $y = x^2$ and the straight line y=2x is

1. $\frac{4}{3}$ sq. units 2. $\frac{3}{4}$ sq. units
3. $\frac{2}{3}$ sq. units 4. $\frac{1}{3}$ sq. units

17. The area bounded by the curve $y = \sin 2x + \cos 2x$ and the x-axis between the ordinates x=0, $x = \frac{\pi}{4}$ is

1. 1 sq. unit 2. $\frac{1}{2}$ sq. unit
3. $\frac{2}{3}$ sq,. units 4. 0 sq . units

18. The area bounded by the curve $y = \cos x$, x-axis between the ordinates $x = 0, x = 2\pi$ is

1. 1 sq. unit 2. 4 sq. units
3. $\frac{2}{3}$ sq, units 4. 2 sq. units

19. The area bounded by the curve $y = \sin x$, x-axis between the ordinates $x = -\pi, x = \pi$ is

1. 2 sq. units 2. 3 sq. units
3. 4 sq. units 4. $\frac{1}{2}$ sq. units

20. The area of the curve $x = a\cos^3 t$, $y = b\sin^3 t$ in sq. units is

1. $\frac{3\pi ab}{4}$ 2. $\frac{3\pi ab}{8}$ 3. $\frac{\pi ab}{4}$ 4. $\frac{\pi ab}{8}$

21. The area bounded by the parabola $y^2 = 4x$ and its latusrectum is

1. $\frac{8}{3}$ sq. units 2. $\frac{3}{8}$ sq. units

3. 12 sq. units 4. $\frac{1}{3}$ sq. units

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

1. 32/3 sq. units 2.22/5 sq. units
3. 1/3 sq. units 4. 64/3 sq. units

23. The area bounded by the curve $x = a\left(\frac{1-t^2}{1+t^2}\right)$, $y = \frac{2at}{1+t^2}$ in sq. units is

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

24. The area bounded by the curve $y = \frac{x^2}{2}$ bounded by $x = 0, x = 2$ and $y = 0$ **is**

1. $\frac{4}{5}$ sq. units 2. $\frac{3}{2}$ sq. units

3. $\frac{3}{4}$ sq. units 4. $\frac{4}{3}$ sq. units

25. The area bounded by the curve $y = (x-4)(x-1)$ and the X-axis is

1. $\frac{6}{5}$ sq. units 2. $\frac{9}{4}$ sq. units

3. $\frac{9}{2}$ sq. units 4. $\frac{5}{6}$ sq. units

26. The area between the curve $y^2 = 9x$ and the line $y = 3x$ is

1. $\frac{1}{3}$ sq. units 2. $\frac{8}{3}$ sq. units

3. $\frac{1}{2}$ sq, units 4. $\frac{1}{5}$ sq. units

27. The area bounded by the curve $xy = 4$, x-axis between the ordinates x=2, x=4 is

1. $\log 2$ sq. units 2. $2\log 2$ sq. units

3. $3\log 2$ sq. units 4. $4\log 2$ sq. units

28. The area bounded by the circle $x^2 + y^2 = a^2$ with the co-ordinate axes is

1. πa^2 sq. units 2. $\frac{\pi a^2}{4}$ sq. units

3. $4\pi a^2$ sq. units 4. $\frac{\pi}{6}$ sq. units

29. The area of the region bounded by $\sqrt{x} + \sqrt{y} = 1$ in the first quadrant is

1. 1 sq. unit 2. $\frac{1}{2}$ sq. units

3. $\frac{1}{6}$ sq. units 4. $\frac{1}{5}$ units

30. Area bounded by the curve $x = a\cos\theta, y = b\sin\theta$ is

1. πab sq. units 2. $\frac{\pi ab}{4}$ sq. units

3. $2\pi ab$ sq. units 4. $\frac{\pi ab}{2}$ sq. units

31. The area between the curve $y = (x-1)^2 - 25$ and X-axis in sq. units is

1. $\frac{250}{3}$ 2. $\frac{500}{3}$ 3. $\frac{750}{3}$ 4. $\frac{1000}{3}$

32. The area of the region $y = ax - bx^2$ bounded by X-axis in sq. units is

1. $\frac{a^3}{6b^2}$ 2. $\frac{a^3}{6}$ 3. a 4. b

33. The area of the region bounded by $y = \sin^4 x$, X-axis and ordinates $x = 0, x = 2\pi$ (in sq. units)

1. $\frac{3\pi}{4}$ 2. $\frac{\pi}{4}$ 3. $\frac{3\pi}{2}$ **4.** 3π

KEY

1-10	**1**	**1**	**1**	**1**	**2**
	2	**1**	**1**	**3**	**1**
11-20	**3**	**1**	**2**	**1**	**3**
	1	**1**	**2**	**3**	**2**
21-30	**1**	**1**	**2**	**4**	**3**
	3	**4**	**1**	**3**	**1**
31-33	**2**	**1**	**1**		

LEVEL - II

1. The area of the region bounded by the curve $y = x^2 + 1$ and $y = 2x - 2$ between x=-1 and x=2 is
   1. 9 sq. units
   2. 12 sq. units
   3. 15 sq. units
   4. 14 sq. units

2. The area bounded by the two parabolas $y^2 = 4ax$ and $x^2 = 4ay$ is
   1. $16a^2$ units
   2. $\frac{16a^2}{3}$ sq. units
   3. $\frac{32a^2}{3}$ sq. units
   4. $\frac{64a^2}{3}$ sq. units

3. The area bounded by the two parabolas $y^2 = 8x$ and $x^2 = 8y$ is
   1. 64 sq. units
   2. $\frac{64}{3}$ sq, units
   3. $\frac{32}{3}$ sq. units
   4. $\frac{1}{3}$ sq. units

4. The area bounded by the two curves $y = \sqrt{x}$ **and** $x = \sqrt{y}$ is
   1. $\frac{1}{3}$ sq, units
   2. $\frac{2}{3}$ sq. units
   3. $\frac{1}{5}$ sq. units
   4. $\frac{1}{7}$ sq. units

5. The area bounded by the two parabolas $y^2 = 4ax$ and $x^2 = 4by$ is
   1. 16ab sq. units
   2. 4ab sq. units
   3. 8ab sq. units
   4. $\frac{16ab}{3}$ sq . units

6. The area bounded by the parabola $y^{2`} = 4ax$ and the line y=mx is
   1. $\frac{8a^2}{m^3}$ sq. units
   2. $\frac{8a}{m^3}$ sq. units
   3. $\frac{8a}{m}$ sq. units
   4 $\frac{8a^2}{3m^3}$ sq. units

7. The area bounded by $y^2 = 4ax$ and $y = mx$ is $\frac{a^2}{3}$ sq. units then m=
   1. 1
   2. 2
   3. 3
   4. 4

8. The area of the elliptic quadrant with the semi major axis and semi minor axis as 6 and 4 respectively
   1. 6π sq. units
   2. 4π sq, units
   3. 24π sq. units
   4. 12π sq. units

9. The area enclosed between $y = \sin 2x, y = \sqrt{3}\sin x$ between $x = 0$ and $x = \frac{\pi}{6}$ is
   1. $\frac{7}{4} - \sqrt{3}$ sq. units
   2. $\frac{7}{4} + \sqrt{3}$ sq. units
   3. $\frac{7\sqrt{3}}{4}$ sq, units
   4. $7 - \frac{\sqrt{3}}{4}$ sq. units

10. The area of the region bounded by the curve $y = \sin x$, x-axis between the ordinates $x = 0, x = 2\pi$ is
    1. 1 sq. units
    2. 2 sq. units
    3. 3 sq. units
    4. 4 sq. units

11. The area bounded by the two curves $y = \sin x$, $y = \cos x$ and the X-axis in the first quadrant is
    1. $2 - \sqrt{2}$ sq. units
    2. $2 + \sqrt{2}$ sq,. units
    3. $2\left(\sqrt{2} - 1\right)$ sq. units
    4. 4 sq. units

12. The area bounded by the curves $y = \sin x, y = \cos x$ and the y-axis and the first point of intersection is
    1. $\sqrt{2}$ sq,.units
    2. $\sqrt{2} - 1$ sq. units
    3. $2 + \sqrt{2}$ sq. units
    4. 0 sq, units

13. The area of the region bounded by the curve $y = x\sin x$ and X-axis between $x = 0, x = 2\pi$ is
    1. 4π sq. units
    2. 2π sq. units
    3. $\frac{\pi}{3}$ sq. units
    4. $\frac{\pi}{4}$ sq. units

14. The area bounded by the curves $y = \cos x, y = \cos 2x$ between the ordinates $x = 0, x = \frac{\pi}{3}$ are in the ratio
    1. $2\sqrt{3} : 4 - \sqrt{3}$
    2. $2:1$
    3. $2\sqrt{3} : 4 + \sqrt{3}$
    4. $1:3$

15. The area bounded by y=sinx, y=cosx between any two successive intersections is

1. 2 2. $\sqrt{2}$ 3. $2\sqrt{2}$ 4. 4

16. The area bounded by $y=\cos x$, $y=x+1$ and $y=0$ in the second quadrant is

1. $\frac{3}{2}$ sq. units 2. 2 sq. units
3. 1 sq. unit 4. $\frac{1}{2}$ sq,. units

17. The area bounded by the curve $y=\sin x$, $y=\cos x$, $x=0$ and $x=\frac{\pi}{4}$ is

1. $\sqrt{2}-1$ sq. units 2. $\sqrt{2}+1$ sq. units
3. $2\sqrt{2}$ sq. units 4. $2\sqrt{2}-1$ sq, units

18. The area of a region bounded by X-axis and the curves defined by $y=\tan x$, $-\frac{\pi}{3}\le x\le\frac{\pi}{3}$ and $y=\cot x, \frac{\pi}{6}\le x\le\frac{3\pi}{2}$ is

1. $\log 3$ sq. units 2. $\log 5$ sq. units
3. $\log 1$ sq. unit 4. $\log 2$ sq. units

19. Area bounded by the curve $y=\sin x-\cos x$ in $\left[0,\frac{\pi}{2}\right]$ in sq. units is

1. 2 2. $2\sqrt{2}$
3. $2(\sqrt{2}-1)$ 4. $(\sqrt{2}-1)$

20. The area bounded by the curve $y^2=x$ and the line x=4 is

1. $\frac{32}{3}$ sq. units 2. $\frac{16}{3}$ sq. units
3. $\frac{8}{3}$ sq. units 4. $\frac{4}{3}$ sq. units

21. The area bounded by the parabola $y^2=4x$ and the line $y=2x-4$ on the Y-axis.

1. 9 sq. units 2. 5 sq. units
3. 4 sq. units 4. 2 sq. units

22. The area enclosed between the parabola $y^2=4ax$ and the lines x=a, $x=9a$ in sq. units is

1. $8a^2$ 2. $\frac{8a^2}{3}$ 3. $\frac{208a^2}{3}$ 4. a^2

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

1. $16\sqrt{2}a^2$ sq. units 2. $\frac{16\sqrt{2}}{3}a^2$ sq. units
3. $\frac{32\sqrt{2}}{3}a^2$ sq. units 4. $\frac{32\sqrt{2}}{5}a^2$ sq. units

24. The area between the curve $y=x^2$ and $y=x+2$ is

1. $\frac{9}{2}$ sq. units 2. $\frac{3}{2}$ sq. units
3. 9 sq. units 4. 6 sq. units

25. The area of the region to the left of the parabola $x=2y^2$ to the right of the Y-axis and between y=1 and y=3 is

1. $\frac{52}{3}$ sq. units 2. $\frac{9}{2}$ sq. units
3. $\frac{13}{3}$ sq. units 4. $\frac{11}{2}$ sq. units

26. The area of the region between the curves $y=x^2$ and $y=x^3$ is

1. $\frac{1}{12}$ sq. units 2. $\frac{1}{3}$ sq. units
3. $\frac{1}{4}$ sq. units 4. $\frac{1}{2}$ sq. units

27. The area of the region bounded by $y=x, y=x^3$ is

1. $\frac{1}{4}$ sq. units 2. $\frac{1}{12}$ sq. units
3. $\frac{1}{3}$ sq. units 4. $\frac{1}{2}$ sq. units

28. The area of the region between the curve $y=4x^2$ and the line $y=6x-2$ is

1. $\frac{1}{9}$ sq. units 2. $\frac{1}{12}$ sq. units
3. $\frac{3}{2}$ sq. units 4. $\frac{1}{5}$ sq. units

29. The part of the area bounded by the curve $x^2(y-1)=6$ between the ordinates x=2 and x=3 is 2 sq. units, if the ordinate x=a divides the area into equal parts then a=

1. $\sqrt{6}$ 2. $\sqrt{8}$ 3. $\frac{1}{\sqrt{2}}$ 4. $\frac{1}{\sqrt{3}}$

30. The area of the quadrilateral formed by the liens $y=2x+3, y=0, x=4$ and $x=6$ is

1. 26 sq. units 2. 24 sq. units
3. 25 sq. units 4. 29 sq. units

31. The area in the first quadrant enclosed by the X-axis under the curve $x^2+y^2=4$ and the line $x=\frac{y}{\sqrt{3}}$ is

1. $\frac{\pi}{3}$ sq. units 2. $\frac{2\pi}{3}$ sq. units
3. π sq . units 4. $\frac{\pi}{2}$ sq. units

32. Area of the region bounded by $y=|x|$ and y=2 is

1. 4 sq. units 2. 2 sq. units
3. 1 sq . units 4. $\frac{1}{2}$ sq. units

33. Area of the region bounded by $y=|x|$ and $y=1-|x|$ is

1. $\frac{1}{3}$ sq. units 2. 1 sq. units
3. $\frac{1}{2}$ sq. unit 4. 2 sq. units

34. The area bounded by the parabola $x=y^2$ and the line $y=x-6$ is

1. $\frac{125}{3}$ sq. units 2. $\frac{125}{6}$ sq. units
3. $\frac{125}{4}$ sq. units 4. $\frac{115}{3}$ sq. units

35. The area between the curves $y=\sqrt{x}$ and $y=x^3$ is

1. $\frac{1}{12}$ sq. units 2. $\frac{5}{12}$ sq. units
3. $\frac{3}{5}$ sq. units 4. $\frac{4}{5}$ sq. units

36. Area bounded by $y=\sqrt{a^2-x^2}$, $x+y=0$ and y-axis in sq. units is

1. $a^2\left(\frac{\pi}{2}\right)$ 2. $a^2\left(\frac{\pi}{4}\right)$
3. $a^2\left(\frac{\pi}{8}\right)$ 4. $a^2\pi$

37. The area of the triangle formed by the positive X-axis and the normal and tangent to the circle $x^2+y^2=4$ at $\left(1,\sqrt{3}\right)$ in sq. units is

1. $\sqrt{3}$ 2. $\frac{1}{\sqrt{3}}$ 3. $2\sqrt{3}$ 4. $3\sqrt{3}$

38. The area bounded by $x^{2/3}+y^{2/3}=a^{2/3}$ in sq. units is

1. $\frac{3\pi a^2}{8}$ 2. $\frac{3\pi a^2}{4}$ 3. $\frac{3\pi a^2}{16}$ 4. $\frac{3\pi a^2}{32}$

39. The area between the curves $y=\tan x$, $y=\cot x$ and x-axis $\left(0\le x\le\frac{\pi}{2}\right)$ is

1. $\log 2$ 2. $2\log 2$ 3. $\frac{1}{2}\log 2$ 4. 1

40. Let A_n be the area bounded by the curve $y=(\tan x)^n$ and the lines x=0, y=0 and $x=\frac{\pi}{4}$ for $n\ge 2$, then $A_n+A_{n-2}=$

1. $\frac{1}{n+1}$ 2. $\frac{1}{n-1}$ 3. $\frac{2}{n+1}$ 4. $\frac{2}{n-1}$

41. Area of the figure bounded by X-axis, $y=Sin^{-1}x$, $y=Cos^{-1}x$ and the first point of intersection from the origin is

1. $2\sqrt{2}$ 2. $2\sqrt{2}+1$ 3. $\sqrt{2}-1$ 4. $\sqrt{2}+1$

42. Area of the region $\{(x,y)/x^2+y^2\le 1\le x+y\}$ is

1. $\frac{\pi}{4}+\frac{1}{2}$ 2. $\frac{\pi}{4}-\frac{1}{2}$
3. $\frac{\pi}{4}+\frac{3}{4}$ 4. $\pi+1$

43. The area under the curve $y=x^2-3x+2$ with boundaries as X-axis and the ordinates x=0, x=3 is

1. $\frac{3}{5}$ sq. units 2. $\frac{11}{6}$ sq. units
3. $\frac{7}{6}$ sq. units 4. $\frac{4}{5}$ sq. units

44. The area bounded by the curve $y=x^3-6x^2+8x$ and the x-axis is

1. 8 sq. units 2. $\frac{8}{3}$ sq. units
3. $\frac{3}{8}$ sq. units 4. 6 sq. units

Key

1-10	1	2	2	1	4
	4	2	1	1	4
11-20	1	2	1	1	3
	4	1	4	3	1
21-30	1	3	2	1	1
	1	4	2	1	1
31-40	2	1	3	2	2
	3	3	1	1	2
41-44	3	2	2	1	

LEVEL - III

1. The area of the region bounded by $y = \tan x$ and tangent at $x = \frac{\pi}{4}$ and the x-axis is

   1. $\log\sqrt{2} - \frac{1}{4}$ sq. units
   2. $\log\sqrt{2} + \frac{1}{4}$ sq. units
   3. $\log\sqrt{2}$
   4. $\log 2$

2. The area between the parabola $y^2 = 4x$, normal at one end of latusrectum and X-axis in sq. units is

   1. $\frac{1}{3}$ 2. $\frac{2}{3}$ 3. $\frac{10}{3}$ 4. $\frac{4}{3}$

3. The area lying in the first quadrant between the curves $x^2 + y^2 = \pi^2$ and $y = \sin x$ and y-axis is

   1. $\frac{\pi^3 - 8}{4}$ sq. units
   2. $\frac{\pi^3 + 8}{4}$ sq. units
   3. $4\left(\pi^3 - 8\right)$ sq. nits
   4. $\frac{\pi - 8}{4}$ sq. units

4. The area bounded by the curves $y = 2^x, y = 2x - x^2$ between the lines x=0, x=2 is

   1. $\frac{3}{\log 2} - \frac{4}{3}$ sq. units
   2. $\frac{3}{\log 2} + \frac{4}{3}$ sq. units
   3. $3 - 4\log 2$ sq. units
   4. $\frac{4}{3} - \frac{3}{\log 2}$ sq. units

5. The area of the region between the curve $y = x^3$ and the lines $y = -x$ and $y = 1$ is

   1. 5 sq. units
   2. $\frac{4}{5}$ sq. units
   3. $\frac{5}{4}$ sq. units
   4. $\frac{3}{5}$ sq. units

6. The area of the part of the circle $x^2 + y^2 = 8a^2$ and the parabola $y^2 = 2ax$ through which positive x-axis passes in sq. units is

   1. $\frac{4a^2(3\pi + 2)}{3}$
   2. $\frac{2a^2(3\pi - 2)}{3}$
   3. $\frac{a^2(3\pi - 2)}{3}$
   4. $\frac{2a^2(3\pi + 2)}{3}$

7. The area between the parabolas $y^2 = 4a(x + a)$ and $y^2 = -4a(x - a)$ in sq. units is

   1. $\frac{4a^2}{3}$ 2. $\frac{8a^2}{3}$ 3. $\frac{12a^2}{3}$ 4. $\frac{16a^2}{3}$

8. Area of the region bounded by $y = e^x, y = e^{-x}, x = 0$ and $x = 1$ in sq. units is

   1. $\left(e + \frac{1}{e}\right)^2$
   2. $\left(e - \frac{1}{e}\right)^2$
   3. $\left(\sqrt{e} + \frac{1}{\sqrt{e}}\right)^2$
   4. $\left(\sqrt{e} - \frac{1}{\sqrt{e}}\right)^2$

9. The area of the region bounded by the curves $y = xe^x$, $y = xe^{-x}$ and the line x=1 is

   1. $\frac{4}{e}$ 2. $\frac{3}{e}$ 3. $\frac{2}{e}$ 4. $\frac{1}{e}$

10. The area of the region bounded by the curves $y = ex\log x$ and $y = \frac{\log x}{ex}$ is

    1. $\frac{e^2 - 5}{4e}$ 2. $e - \frac{5}{4}$ 3. $\frac{e}{4} - 5$ 4. $\frac{e}{4} - \frac{1}{4e}$

11. The value of c for which the area bounded by the curve $y = 8x^2 - x^5$, the lines x=1, x=c and X-axis is $\frac{16}{3}$ sq. units is

    1. 1 2. 0 3. -2 4. -1

12. The slope of the tangent to the 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

1. $\frac{2}{3}$ 2. $\frac{1}{3}$ 3. $\frac{1}{6}$ 4. $\frac{5}{6}$

13. The positive value of the parameter "a" for which the area of the figure bounded by $y=\sin ax$, y=0, $x=\frac{\pi}{a}$, $x=\frac{\pi}{3a}$ is equal to 8,

1. 1 2. 1/3 3. ½ 4. 1/4

14. The area of the region bounded by $y=|x-1|$ and y=1 in sq. units is

1. 1 2. ½ 3. 2 4. 3

15. Area of the region bounded by $y=|x-1|$ and $y=3-|x|$ is

1. 1 sq. unit 2. 2 sq. unit
3. 3 sq. units 4. 4 sq. units

16. The area bounded by the curve $y=f(x)$, the coordinates axes and the line x=t is given by te^t then $f(x)=$

1. xe^x-e^x 2. xe^x+e^x
3. xe^x 4. xe^x+2e^x

17. Area of the region bounded by $y=x-[x]$, $2x-1=0$ and X-axis is

1. $\frac{1}{2}$ 2. $\frac{1}{4}$ 3. $\frac{1}{8}$ 4. 1

18. Area of the region bounded by $y=x-[x]$, $y=[x]$ and x-axis in $[0,2]$ is

1. $\frac{5}{2}$ 2. $\frac{3}{2}$ 3. 1 4. 2

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

1. $\frac{\pi a^2}{4}$ 2. $\frac{\pi a^2}{16}$ 3. $\frac{\pi a^2}{32}$ 4. πa^2

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

1. $3\pi a^2$ 2. 2π 3. $2\pi a$ 4. 3π

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

1. π 2. $\frac{\pi}{2}$ 3. $\frac{\pi a^2}{2}$ 4. πa^2

22. For which of the following values of m is the area of the region bounded by the curve $y=x-x^2$ and the line $y=mx$ equal to $\frac{9}{2}$

1. -4 2. 2 3. 1 4. -2

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

1. $\frac{1}{3}$ 2. $\frac{2}{3}$ 3. 1 4. $\frac{7}{3}$

KEY

1-10	**1**	**3**	**1**	**1**	**3**
	4	**2**	**4**	**3**	**1**
11-20	**4**	**4**	**3**	**1**	**4**
	2	**3**	**3**	**4**	**1**
21-30	**4**	**4**	**2**		

LEVEL - IV

NEW PATTERN QUESTIONS

1. I: The area bounded by $x=2\cos\theta$, $y=3\sin\theta$ is 36π sq. units.
II: The area bounded by $x=2\cos\theta$, $y=2\sin\theta$ is 4π sq.units.
Which of the above statement is correct?
1. Only I 2. Only II
3. Both I and II 4. Neither I nor II.

2. I: The area bounded by the curve $y=x^3$ and the ordinates $x=-2$ and $x=1$ with X-axis is $\frac{15}{4}$ sq. units.
II: The area bounded by the parabola $y^2=x$ and the straight line $y=4$ with Y-axis is $\frac{64}{3}$ sq. units.
Which of the above statement is correct?
1. Only I 2. Only II
3. Both I and II 4. Neither I nor II.

3. I: The area bounded by the curve $y = \log_e x$, X-axis and the line x=e is 1 sq. units.
II: The area bounded by X-axis, the curve y=f(x) and the lines x=1, x=b is $\sqrt{b^2+1}-\sqrt{2}$ for all b>!
then $f(x)=\frac{x}{\sqrt{x^2+1}}$.
Which of the above statement is correct?
1. Only I 2. Only II
3. Both I and II 4. Neither I nor II.

4. I: The area bounded by the curves $y = \sin x$, $y = \cos x$ and Y-axis is $\sqrt{2}-1$ sq. units.
II: The area bounded by $y = \cos x$, $y = x+1$, $y = 0$ is 3/2 sq. units.
Which of the above statement is correct?
1. Only I 2. Only II
3. Both I and II 4. Neither I nor II.

5. I: The area bounded by the line y=x and the curve $y = x^3$ is ½ sq. units.
II: The area bounded by the curves $y = x^3$ and $y = x^2$ and the ordinates x=1, x=2 is $\frac{7}{12}$ sq. units.
Which of the above statement is correct?
1. Only I 2. Only II
3. Both I and II 4. Neither I nor II.

KEY

1-5 2 3 3 3 1

1. Match the following:

List - I	**List - II**
1. Area of the region bounded by $y = 2x - x^2$ and X-axis	a. 1/3
2. Area of the region $\{(x,y): x^2 \le y \le \lvert x\rvert\}$	b. ½
3. Area bounded by $y = x$ and $y = x^3$	c. 2/3
4. Area bounded by $y = x\lvert x\rvert$, x-axis and x= -1, x=1	d. 4/3

The correct match is
1. b,c,d,a 2. c,d,a,b
3. d,a,b,c 4. a,b,c,d

2. Match the following:

List - I	**List - II**
1. Area bounded by $y^2 = 4ax$ and $x^2 = 4ay$ is	a. $\frac{8a^2}{3}$
2. Area bounded by $y^2 = 4ax$ and its latusrectum is	b. $\frac{a^2}{6}$
3. Area bounded by $x = 2\cos\theta, y = 2\sin\theta$ is	c. $\frac{16a^2}{3}$
4. Area bounded by $\sqrt{x}+\sqrt{y}=\sqrt{a}$ is	d. 2π

The correct match is
1. c,a,d,b 2. b,d,a,c
3. a,b,c,d 4. c,d,b,a

3. Match the following:

List - I	**List - II**
1. Area bounded by $y = \lvert x\rvert$ and y=2 is	a. 4
2. Area bounded by $\frac{\lvert x\rvert}{a}+\frac{\lvert y\rvert}{b}=1$, when a,b>0 is	b. $\frac{(\pi-2)ab}{4}$
3. Area between the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ and the chord $\frac{x}{a}+\frac{y}{b}=1$	c. 1
4. Area bounded by $y = [x]$, the x-axis and x=1, x=2 is	d. 2ab

The correct match is
1. a,d,c,b 2. a,d,b,c
3. b,d,a,c 4. a,b,c,d

4. Match the following:

List - I	**List - II**
1. Area of the region bounded by $y = \lvert 5\sin x\rvert$ from x=0 to $x = 4\pi$ and x-axis	a. 3/2
2. The area bounded by y=cosx in $[0, 2\pi]$ and the X-axis	b. $\sqrt{2}-1$

3. The area bounded by
y=sinx, y=cosx and the y-axis c. 4
4. The area bounded by
$y=\cos x,\ y=x+1$, y=0 d. 40

The correct match is

1. a,b,c,d 2. d,b,a,c
3. d,c,b,a 4. d,a,b,c

KEY

1. 3 2. 1 3. 2 4. 3

1. A: Area bounded by $x=4-y^2$ with Y-axis

   B: Area bounded by $x=6+5y-y^2$ with Y-axis

   C: Area bounded by $2x=y^2-1$ with Y-axis

   The ascending order of A,B,C is

   1. A,B,C 2. B,C,A 3. A,C,B 4. C,A,B

2. A: The area bounded by $x=3, y^2=3x$

   B: The area bounded by $y=1-|x|$ and X-axis.

   C: The area enclosed between the curve $y=x^2$ and the line y=3x

   The descending order of A,B,C is

   1. A,C,B 2. B,C,A 3. A,B,C 4. C,A,B

3. Arrangement of the following areas between the curves is descending order:

   A: $y^2=4x,\ x^2=4y$

   B. $y=x, y=x^3$

   C. $y^2=8x, y=2x$

   D. $y=\sqrt{x}, y=x^2$

   1. A,B,C,D 2. A,C,B,D
   3. D,B,C,A 4. D,C,B,A

KEY

1. 4 2. 1 3. 2

1. Assertion(A): If $e=2.72, e^2=7.39,$ $e^3=20.09, e^4=54.6$ then $\int_0^4 e^x dx$ by Simpson's rule is 53.873

   Reason(R):Simpson's rule is $\int_a^b y dx=\frac{h}{2}$ $[(y_0+y_n)+2(y_1+y_2+.....+y_{n-1})]$.

   1. Both A and R are true and R is the correct explanation of A.
   2. Both A and R are true but R is not the correct explanation of A.
   3. A is true but R is false.
   4. A is false but R is true..

2. Assertion(A): The area bounded by $y^2=4x$ and $x^2=4y$ is $\frac{16}{3}$ sq. units.

   Reason(R): The area bounded by $y^2=4ax$ and $x^2=4ay$ is $\frac{16ab}{3}$ sq. units

   1. Both A and R are true and R is the correct explanation of A.
   2. Both A and R are true but R is not the correct explanation of A.
   3. A is true but R is false.
   4. A is false but R is true.

3. Assertion(A): The area bounded by $y^2=4x$ and $y=x$ is $\frac{8}{3}$ sq. units.

   Reason(R): The area bounded by $y^2=4ax$ and $y=mx$ is $\frac{8a^2}{3m^3}$ sq. units.

   1. Both A and R are true and R is the correct explanation of A.
   2. Both A and R are true but R is not the correct explanation of A.
   3. A is true but R is false.
   4. A is false but R is true.

KEY

1. 3 2. 1 3. 1

LEVEL -V

I. The area enclosed between the two curves $y=f_1(x)$ and $y=f_2(x)$ and ordinates $x=a, x=b\ (b>a)$ is denoted by R. Then the area of the region. R = Area of the region covered by $f_1(x)$ - Area of the region covered by $f_2(x)$

1. The are of the region bounded by the curve $y=x^2+1$ and $y=2x-2$ between $x=-1$ and $x=2$

   1. 9 Sq. Units 2. 12 Sq. Units
   3. 15 Sq. Units 4. 14 Sq. Units

2. The area bounded by the curve $y^2=x$ and the line $x=4$ is

   1. $\frac{32}{3}$ Sq. Units 2. $\frac{16}{3}$ Sq. Units 3 .

$\frac{8}{3}$ Sq. Units 4. $\frac{4}{3}$ Sq. Units

II. Let $y=f(x)$ be given function and for equally spaced $y=f(x)$ arguments $x=a, a+h$, $a+2h \ldots a+nh=b$ and $y_0=f(x_0), y_1 f(x_1), y_2=f(x_2) \ldots$ $y_n=f(x_n)$ in $[a,b]$. Then

$$\int_a^b y\,dx=\frac{h}{2}\left[(y_0+y_n)+2(y_1+y_2+\ldots..+y_{n-1})\right].$$

1. The value of $\int_1^4 3x^2\,dx$ taking 3 intervals is

1. 24. 5 2. 34.5 3. 64.5 4. 74.5

2. The value of $\int_1^5 (2x+1)\,dx$ taking 4 equal intervals.

1. 5 2. 8 3. 28 4.28.2

KEY

I 1) 2 2) 1 **II** 1) 3 2) 3

PREVIOUS EAMCET QUESTIONS

1. The area in square units bounded by the curves $y^2=4x$ and $x^2=4y$ in the plane is (EAMCET 2005)

1. 8/3 2. 16/3 3. 32/3 4. 4/3

2. The area bounded by $y=x^2+2$, X-axis , x=1 and x=2 is (EAMCET 2004)

1. $\frac{16}{3}$ 2. $\frac{17}{3}$ 3. $\frac{13}{3}$ 4. $\frac{20}{3}$

3. If [2,6] is divided into 4 intervals of equal length then approximate value of $\int_2^6 \frac{1}{x^2-x}dx$ using Simpson's rule (EAMCET 2003)

1. 0.3222 2. 0.2333
3. 0.5222 4. 0.2555

4. The approximate value of $\int_1^9 x^2\,dx$ by using Trapezoidal rule with 4 equal intervals is (EAMCET 2002)

1. 248 2. 242.5 3. 242.8 4. 243

5. The area of the region bounded by $x^2=8y$, $x=4$ and the x-axis is (EAMCET 2001)

1. $\frac{2}{3}$ 2. $\frac{4}{3}$ 3. $\frac{8}{3}$ 4. $\frac{10}{3}$

6. x: 1 2 3 4
y: 0.7111 0.7222 0.7333 0.7444
Using above table and Trapezoidal rule, the approximate value of $\int_1^4 y\,dx$ is (EAMCET 2001)

1. 0.1833 2. 1.1833
3. 2.1883 4. 3.183

7. The area in square units of the region bounded by the curve $x^2=4y$, the line x=2 and the X-axis is (EAMCET 2000)

1. 1 2. 2/3 3. 4/3 4. 8/3

8. The area in square units bounded by the curves $y=x^3$, $y=x^2$ and the ordinates x=1, x=2 is (EAMCET 2000)

1. $\frac{17}{12}$ 2. $\frac{12}{13}$ 3. $\frac{2}{7}$ 4. $\frac{7}{2}$

9. The area bounded by the parabola $x=4-y^2$ and the Y-axis, in square units is (EAMCET 1999)

1. 3/32 2. 32/3 3. 33/2 4. 16/4

10. The approximate value of $\int_{-3}^{3} x^2\,dx$,using Trapezoidal rule and taking 6 equal intervals is (EAMCET 1999)

1. 11.5 2. 19 3. 115 4. 120

11. The area bounded by $y=3x$ and $y=x^2$ is (in square units) (EAMCET 1998)

1. 10 2. 5 3. 4.5 4. 9

12. The area (in square units) bounded by the x-axis, part of the curve $y=1+\frac{8}{x^2}$ and the lines x=2 and x=4 is (EAMCET 1997)

1. 2 2. 3 3. 4 4. 5

13. AOB is the positive quadrant of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ where OA=a, OB=b. Then area between the arc AB and chord AB of the ellipse is (EAMCET Re-exam 1996)

1. πab 2. $(\pi-2)ab$

3. $\frac{ab(\pi+2)}{2}$ 4. $\frac{ab(\pi-2)}{4}$

14. Area of the segment cut off from the parabola $x^2=8y$ by the line $x-2y+8=0$ is (EAMCET Re-exam 1996)

1. 12 2. 24 3. 48 4. 36

15. Area bounded by the curves $y=x$, $y=x^3$ is (EAMCET Re-exam 1996)

1. ¼ 2. 1/6 3. 1/12 4. 1/2

16. The area in square units bounded by the X-axis, part of $y=1+\frac{8}{x^2}$ and the ordinates x=2 and x=4 is (EAMCET Re-exam 1996)

1. 2 2. 3 3. 4 4. 5

17. The area bounded by the X-axis and the curve $y=4x-x^2-3$ is (EAMCET - 1996)

1. 2/3 2. 8/3 3. 4/3 4. 1/3

18. The area , in square units of the region bounded by the parabolas $y^2=4x$ and $x^2=4y$ is (EAMCET - 1996)

1. 16/3 2. 32/3 3. 8/3 4. 4/3

19. $f(x)=\frac{1}{1+x}$ for $0\le x\le 1$ and the interval [0,1] is divided into 2 equal subintervals. Using Trapezoidal rule, $\int_0^1 \frac{1}{1+x}dx=$ (EAMCET - 1996)

1. $\frac{17}{24}$ 2. $\frac{17}{14}$ 3. $\frac{17}{48}$ 4. $\frac{17}{12}$

20. Given e=2.72, $e^2=7.39$, $e^3=20.09$, $e^4=54.60$, the approximate value of $\int_0^4 e^x dx$ using Simpson's rule and taking h=1 is (EAMCET - 1995)

1. 57.325 2. 53.873
3. 58.873 4. 57.325

21. Area of the region enclosed by $y^2=8x$ and y=2x is (EAMCET - 1995)

1. 4/3 2. ¾ 3. ¼ 4. ½

Eamcet-2007

22. The area (in square units) of the region enclosed by the curves $y=x^2$ and $y=x^3$ is **E-2007**

1) $\frac{1}{12}$ 2) $\frac{1}{6}$ 3) $\frac{1}{3}$ 4) 1

KEY

1-10	2	3	3	1	3
	3	2	1	2	2
11-20	3	4	4	2	4
	3	1	1	1	2
21-30	1	1			

PREVIOUS AIEEE QUESTIONS

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

1. 4 2. 2 3. 3 4. 1

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

1. 6 2. 2 3. 3 4. 4

3. The area of the region bounded by $y=2x-x^2$ and $y=-x$ **is**

1. $\frac{9}{2}$ 2. $\frac{43}{6}$ 3. $\frac{35}{6}$ 4. $\frac{10}{3}$

KEY

1. 4 2. 4 3. 1