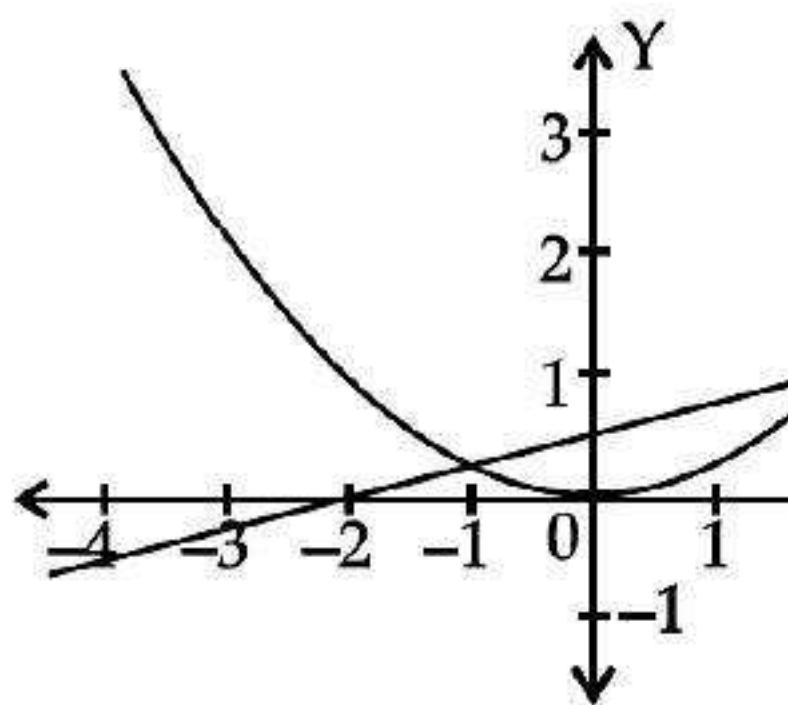


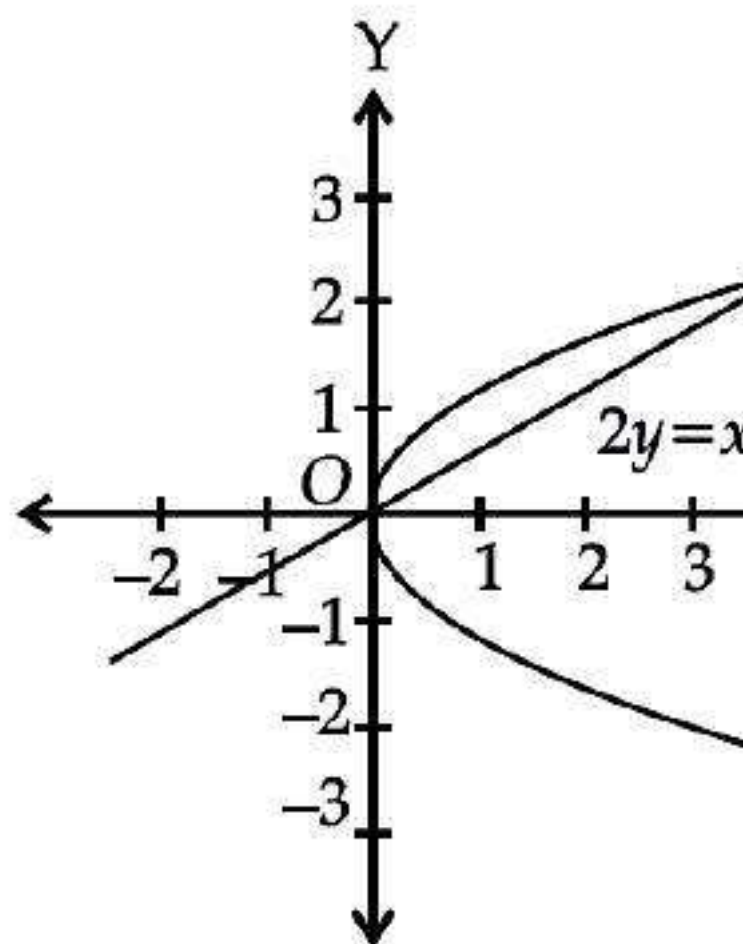
CHAPTER

8

Syllabus



$$\begin{aligned}
 A &= \int_{-1}^2 \left[\frac{x+2}{4} - \frac{x^2}{4} \right] dx \\
 &= \frac{1}{4} \left[\frac{x^2}{2} + 2x - \frac{x^3}{3} \right]_{-1}^2 \\
 &= \frac{1}{4} \left[8 - \frac{1}{2} - \left(-\frac{1}{2} - 2 + \frac{1}{3} \right) \right] \\
 &= \frac{1}{4} \left[8 - \frac{1}{2} - \left(-\frac{1}{2} - 2 + \frac{1}{3} \right) \right] \\
 &= \frac{9}{4} \text{ sq. unit}
 \end{aligned}$$

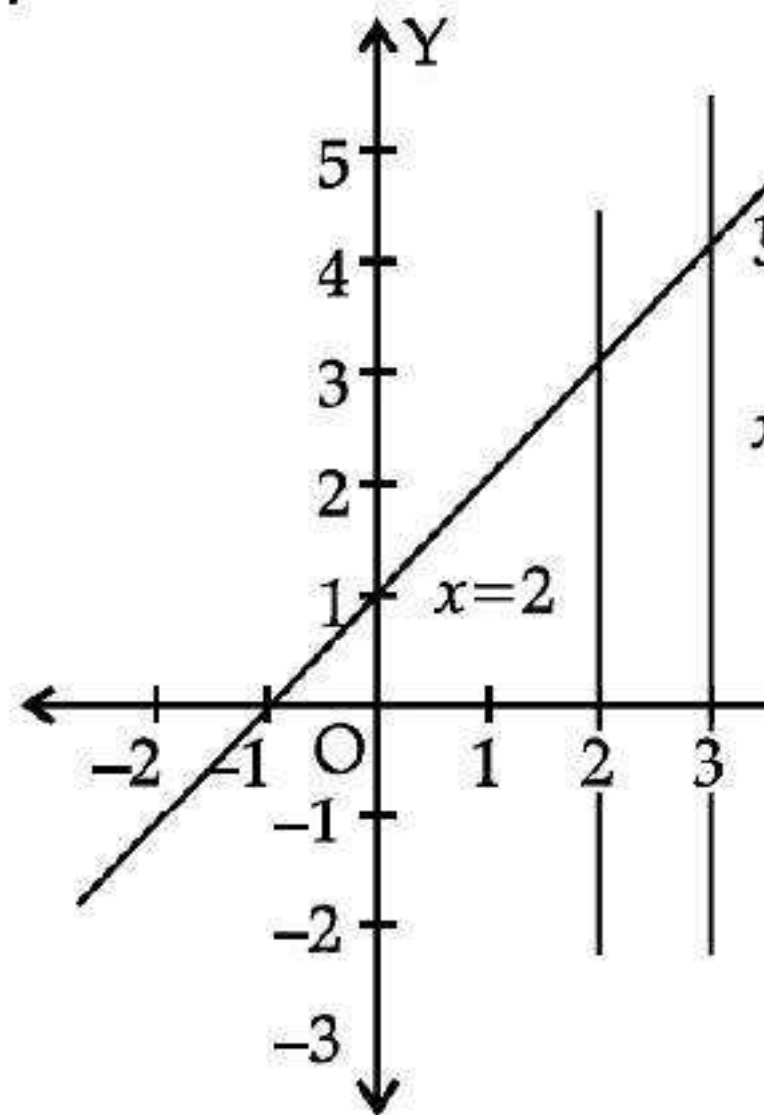


From the figure, area of the

$$\begin{aligned}
 A &= \int_0^4 \left[\sqrt{x} - \frac{x}{2} \right] dx \\
 &= \left[\frac{2}{3} x^{3/2} - \frac{1}{2} \cdot \frac{x^2}{2} \right] \\
 &= \frac{2}{3} \cdot (4)^{3/2} - \frac{16}{4} - 0
 \end{aligned}$$

Ans. Option (A) is correct.

Explanation:



From the figure, area of the

$$A = \int_2^3 (x + 1) dx$$

$$= \left[\frac{x^2}{2} + x \right]_2^3$$

$$\begin{aligned}
 &= \int_0^3 \frac{y^2}{4} dy \\
 &= \frac{1}{4} \left[\frac{y^3}{3} \right]_0^3 \\
 &= \frac{1}{12} \times 27 \\
 &= \frac{9}{4} \text{ sq}
 \end{aligned}$$

Q. 12. Smaller area enclosed by the
the line $x + y = 2$

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

Ans. Option (B) is correct.

Explanation: The smaller
the circle $x^2 + y^2 = 4$ and the
represented by the shaded area



$$= \left[\frac{x^4}{4} \right]_{-2}^1$$

$$= \left(\frac{1}{4} - 4 \right)$$

$$= -\frac{15}{4}$$

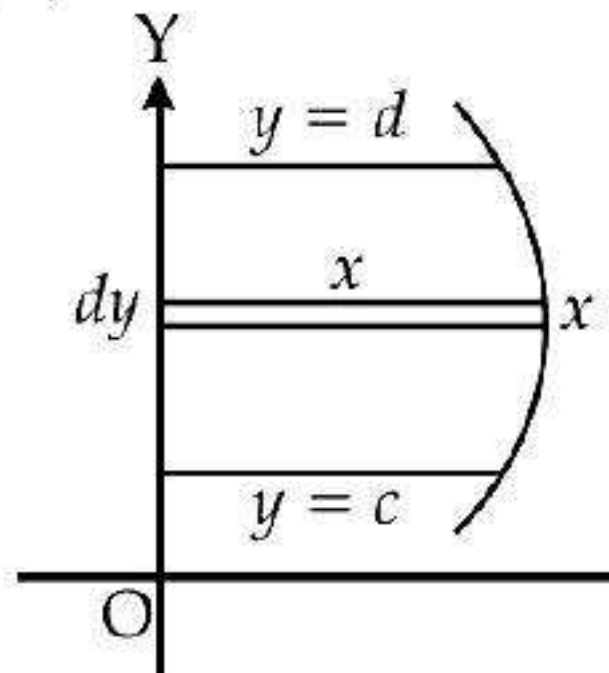
$$\therefore \text{Area} = \left| -\frac{15}{4} \right|$$
$$= \frac{15}{4} \text{ sq. uni}$$

Q. 15. The area of the circle $x^2 + y^2 = 4$ and the parabola $y^2 = 6x$ is

(A) $\frac{4}{3}(4\pi - \sqrt{3})$ (B)

(C) $\frac{4}{3}(8\pi - \sqrt{3})$ (D)

Reason (R):



The area A of the region bound
 y -axis and the lines $y = c$ and

$$A = \int_c^d x dy$$

Ans. Option (B) is correct.

Explanation: Assertion (A)
 both are individually correct

Q. 2. Assertion (A):

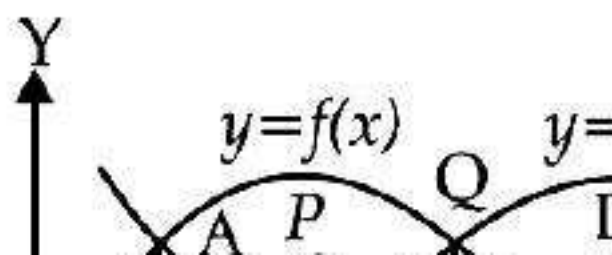


$$\begin{aligned}
 A &= 2 \int_0^4 x dy \\
 &= 2 \int_0^4 \sqrt{y} dy \\
 &= 2 \times \frac{2}{3} \left[y^{3/2} \right]_0^4 \\
 &= \frac{4}{3} \times 8 \\
 &= \frac{32}{3}
 \end{aligned}$$

Ans. Option (D) is correct.

Explanation: Assertion (A) (R) is the correct solution of

Q. 6. Assertion (A): If the two $y = f(x)$ intersect at $x = a$, $x = b$, $a < c < b$.



Ans. Option (A) is correct.

Explanation:

$$f(x) = x^2$$

$$f(-x) = x^2$$

$\therefore f(x)$ is even function.

Q. 4. The area formed by the curve $y = 10 - x^2$ and the x-axis between $x = 0$ and $x = 10$ is

(A) $\frac{1000\sqrt{2}}{3}$

(C) $\frac{1000}{3}$

Ans. Option (C) is correct.

Explanation:

$$x^2 = 250y$$

$$y = \frac{1}{250}x^2$$

Explanation:

Area of shaded region

$$= Ar (\Delta OQR)$$

$$= 8 + 4\pi$$

$$= 4\pi \text{ sq.}$$

III. Read the following text and answer the following questions on the basis of the text.

A farmer has a square plot of land. The boundaries are $x = 0$, $y = 0$ and $x = 4$, $y = 4$. He wants to divide this land among his three children. The division is shown in figure.

