| Ques No.	Question
1	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 1** Find the area of the region bounded by the curve $y^2 = x$ and the lines $x = 1, \quad x = 4$ and the x-axis. ▶ Watch Free Video Solution on Doubtnut
2	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 2** Find the area of the region bounded by $y^2 = 9x,$ $x = 2, \quad x = 4$ and the x-axis in the first quadrant. ▶ Watch Free Video Solution on Doubtnut
3	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 3** Find the area of the region bounded by $x^2 = 4y$, $y = 2, \quad y = 4$ and the y-axis in the first quadrant. ▶ Watch Free Video Solution on Doubtnut
4	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 4** Find the area of the region bounded by the ellipse $\dfrac{x^2}{16} + \dfrac{y^2}{9} = 1$. ▶ Watch Free Video Solution on Doubtnut
5	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 5** Find the area of the region bounded by the ellipse $\dfrac{x^2}{4} + \dfrac{y^2}{9} = 1$
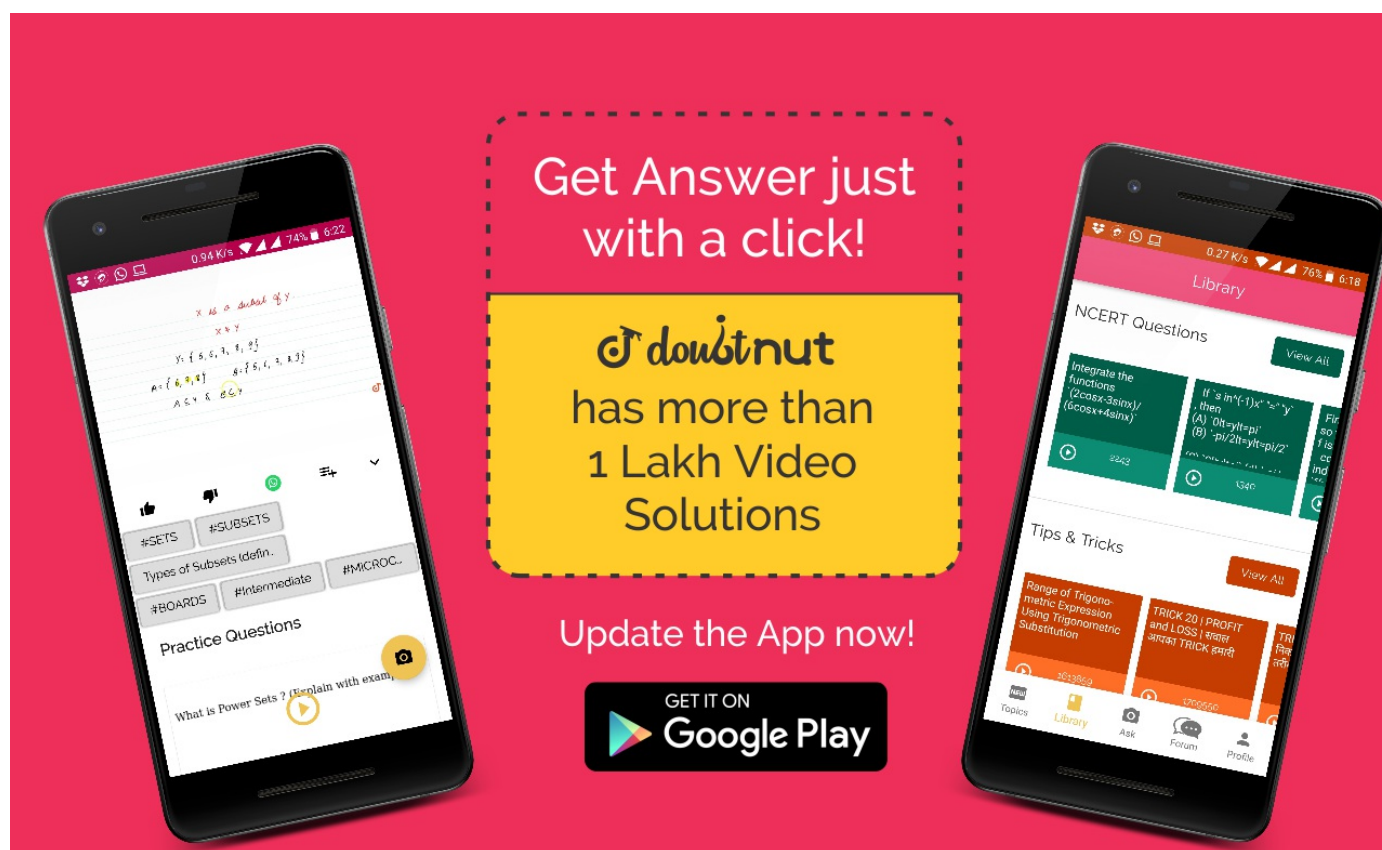
NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 6

Find the area of the region in the first quadrant enclosed by x-axis, line $x = \sqrt{3}y$ and the circle $x^2 + y^2 = 4$.

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 7

Find the area of the smaller part of the circle $x^2 + y^2 = a^2$ cut off by the line $x = \dfrac{a}{\sqrt{2}}$

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 8

The area between $x = y^2$ and $x = 4$ is divided into two equal parts by the line $x = a$, find the value of a.

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 9

Find the area of the region bounded by the parabola $y = x^2$ and $y = |x|$.

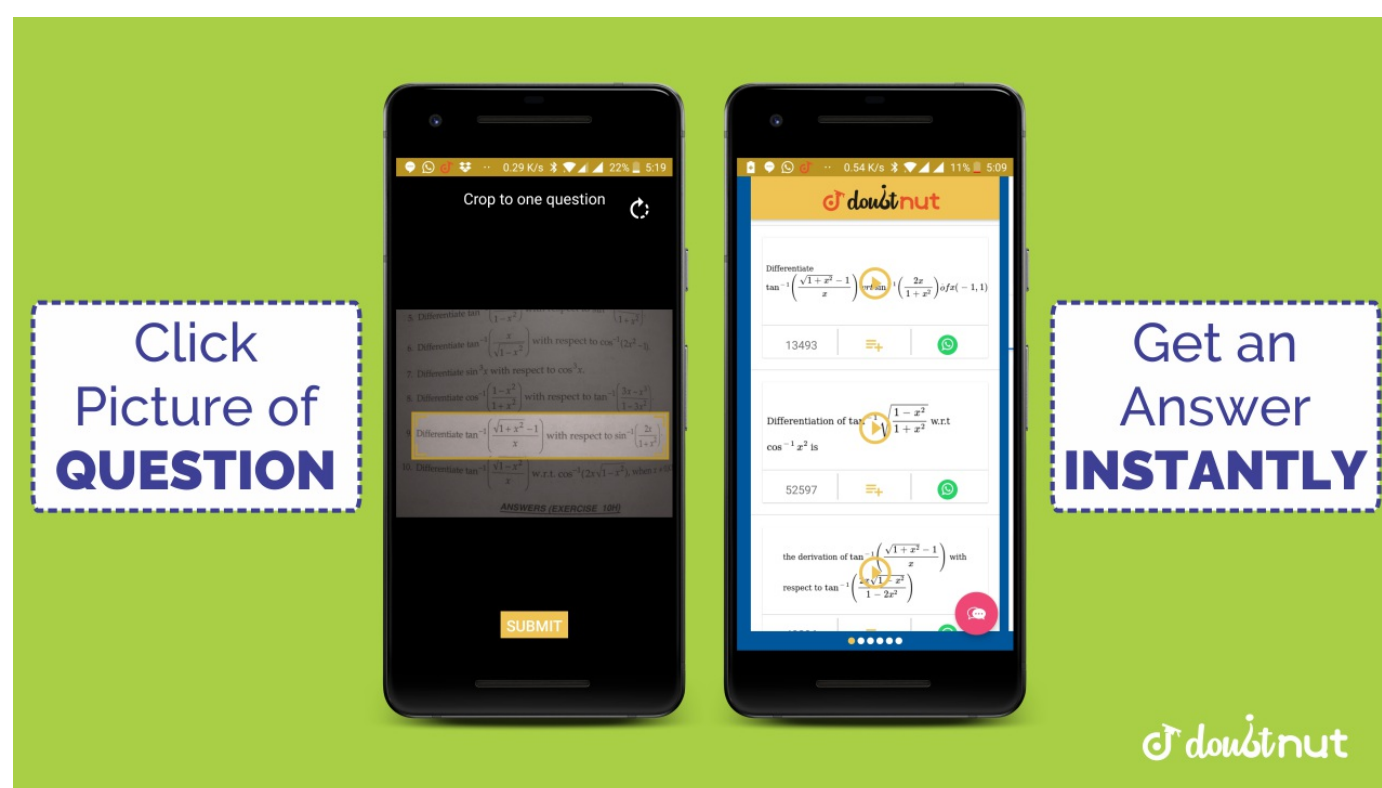|	
10	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 10** Find the area bounded by the curve $x^2 = 4y$ and the line $x = 4y - 2$. ▶ Watch Free Video Solution on Doubtnut
11	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 11** Find the area of the region bounded by the curve $y^2 = 4x$ and the line $x = 3$. ▶ Watch Free Video Solution on Doubtnut
12	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 12** Area lying in the first quadrant and bounded by the circle $x^2 + y^2 = 4$ and the lines $x = 0$ $and x = 2$ is (A) π (B) $\dfrac{\pi}{2}$ (C) $\dfrac{\pi}{3}$ (D) $\dfrac{\pi}{4}$ ▶ Watch Free Video Solution on Doubtnut
13	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.1 - Q 13** Area of the region bounded by the curve $y^2 = 4x$, y-axis and the line $y = 3$ is (A) 2 (B) $\dfrac{9}{4}$ (C) $\dfrac{9}{3}$ (D) $\dfrac{9}{2}$ ▶ Watch Free Video Solution on Doubtnut
14	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 1** Find the area of the circle $4x^2 + 4y^2 = 9$ which is interior to the parabola $x^2 = 4y$.

15	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 2** Find the area bounded by curves $(x-1)^2 + y^2 = 1$ and $x^2 + y^2 = 1$.
16	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 3** Find the area of the region bounded by the curves $y = x^2 + 2$, $y = x$, $x = 0$ and $x = 3$.
17	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 4** Using integration find the area of region bounded by the triangle whose vertices are $(1, 0)$, $(1, 3)$ and $(3, 2)$.
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18	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 5** Using integration find the area of the triangular region whose sides have the equations $y = 2x + 1$,

$$y = 3x + 1$$

and $x = 4$.

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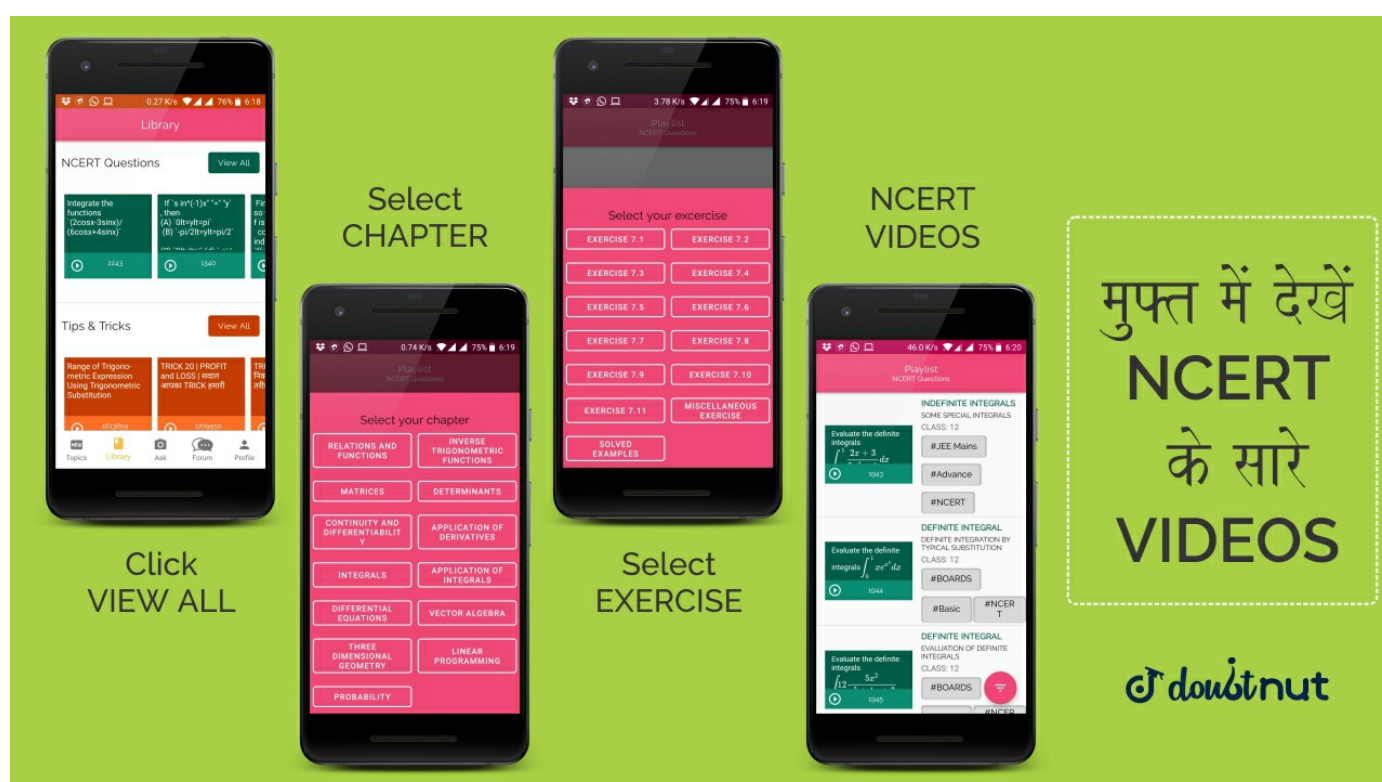| 19	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 6** Smaller area enclosed by the circle $x^2 + y^2 = 4$ and the line $x + y = 2$ is (A) $2(\pi - 2)$ (B) $\pi - 2$ (C) $2\pi - 1$ (D) $2(\pi + 2)$ ▶ Watch Free Video Solution on Doubtnut
20	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - EXERCISE 8.2 - Q 7** Area lying between the curves $y^2 = 4x$ and $y = 2x$ is (A) $\dfrac{2}{3}$ (B) $\dfrac{1}{3}$ (C) $\dfrac{1}{4}$ (D) $\dfrac{3}{4}$ ▶ Watch Free Video Solution on Doubtnut
21	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 1** Find the area under the given curves and given lines: (i) $y = x^2$, $x = 1$, $x = 2$ and x-axis (ii) $y = x^4$, $x = 1$, $x = 5$ and x-axis ▶ Watch Free Video Solution on Doubtnut
22	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 2** Find the area between the curves $y = x$ and $y = x^2$. ▶ Watch Free Video Solution on Doubtnut
23	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 3** Find the area of the region lying in the first quadrant and bounded by $y = 4x^2$, $x = 0$, $y = 1$ and $y = 4$.

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 4

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Sketch the graph of
$$y = |x + 3|$$
and evaluate $\int -60|x+3|\,dx$.

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 5

25

Find the area bounded by the curve $y = s \in x$ between $x = 0$ and $x = 2\pi$.

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 6

26

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

NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 7

27

Find the area enclosed by the parabola $4y = 3x^2$ and the line
$$2y = 3x + 12$$
.

28	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 8** Find the area of the smaller region bounded by the ellipse $\dfrac{x^2}{9} + \dfrac{y^2}{4} = 1$ and the line $\dfrac{x}{3} + \dfrac{y}{2} = 1$ ▶ Watch Free Video Solution on Doubtnut
29	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 9** Find the area of the smaller region bounded by the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ and the line $\dfrac{x}{a} + \dfrac{y}{b} = 1$ ▶ Watch Free Video Solution on Doubtnut

30	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 10** Find the area of the region enclosed by the parabola $x^2 = y$, the line $y = x + 2$ and the x-axis. ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 11

31	Using the method of integration find the area bounded by the curve $|x| + |y| = 1$. [Hint: The required region is bounded by lines $x + y = 1$, $x - y = 1$, $-x + y = 1$ and $-x - y = 1$].

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| 32 | **NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 12**

Find the area bounded by curves $\{(x, y) : y \geq x^2 \text{ and } y = |x|\}$

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| 33 | **NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 13**

Using the method of integration find the area of the triangle ABC, coordinates of whose vertices are A(2, 0), B (4, 5) and C (6, 3).

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| 34 | **NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 14**

Using the method of integration find the area of the region bounded by lines: $2x + y = 4$, $3x - 2y = 6$ and $x - 3y + 5 = 0$

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| 35 | **NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 15**

Find the area of the region |

$$\{(x, y) : y^2 \le 4x, 4x^2 + 4y^2 \le 9\}$$

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NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 16

36

Area bounded by the curve $y = x^3$, the x-axis and the ordinates $x = 2$ and $x = 1$ is (A) -9 (B) $\dfrac{-15}{4}$ (C) $\dfrac{15}{4}$ (D) $\dfrac{17}{4}$

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NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 17

37

The area bounded by the curve $y = x|x|$, x-axis and the ordinates $x = -1$ and $x = 1$ is given by (A) 0 (B) $\dfrac{1}{3}$ (C) $\dfrac{2}{3}$ (D) $\dfrac{4}{3}$ [Hint : $y = x^2$ if $x > 0$ and $y = -x^2$ if $x < 0$].

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NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - MISCELLANEOUS EXERCISE - Q 18

38

The area of the circle $x^2 + y^2 = 16$ exterior to the parabola $y^2 = 6x$ is (A) $\dfrac{4}{3}\left(4\pi - \sqrt{3}\right)$ (B) $\dfrac{4}{3}\left(4\pi + \sqrt{3}\right)$ (C) $\dfrac{4}{3}\left(8\pi - \sqrt{3}\right)$ (D) $\dfrac{4}{3}\left(8\pi + \sqrt{3}\right)$

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NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS -

39	**MISCELLANEOUS EXERCISE - Q 19** The area bounded by the y-axis, $y = \cos x$ and $y = s\in x$ when $0 \le x \le \dfrac{\pi}{2}$ is (A) $2\left(\sqrt{2-1}\right)$ (B) $\sqrt{2} - 1$ (C) $\sqrt{2} + 1$ (D) $\sqrt{2}$ ⏵ Watch Free Video Solution on Doubtnut
40	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 1** Find the area enclosed by the circle $x^2 + y^2 = a^2$. ⏵ Watch Free Video Solution on Doubtnut
41	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 2** Find the area enclosed by the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$. ⏵ Watch Free Video Solution on Doubtnut

42	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 3** Find the area of the region bounded by the curve $y = x^2$ and the line $y = 4$. ⏵ Watch Free Video Solution on Doubtnut
43	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 4** Find the area of the region in the first quadrant enclosed by the x-axis, the line $y = x$, and the circle $x^2 + y^2 = 32$. ⏵ Watch Free Video Solution on Doubtnut

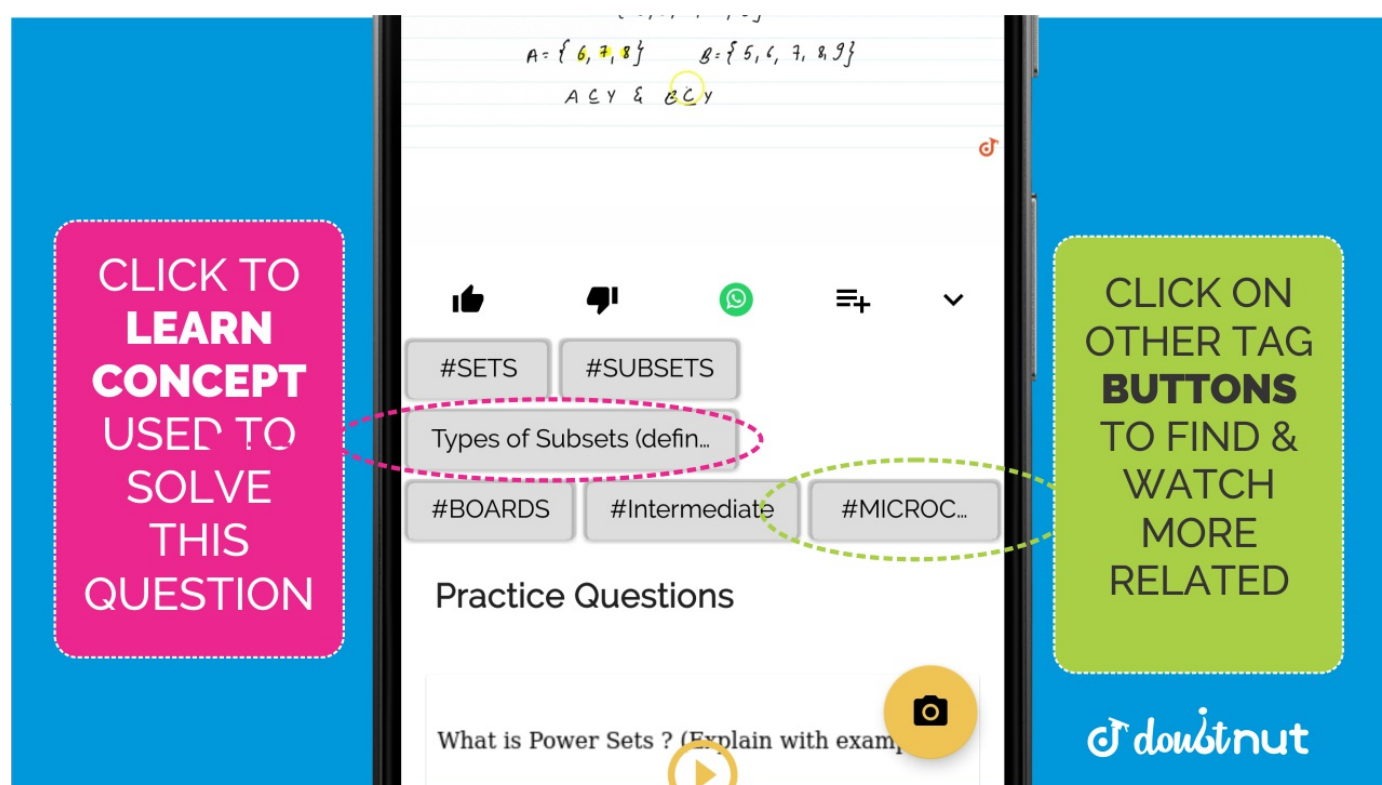|	
44	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 5** Find the area bounded by the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ and the ordinates $x = 0$ and $x = ae$, where, $b^2 = a^2(1 - e^2)$ and $e < 1$. ▶ Watch Free Video Solution on Doubtnut
45	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 6** Find the area of the region bounded by the two parabolas $y = x^2$ and $y^2 = x$. ▶ Watch Free Video Solution on Doubtnut
46	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 7** Find the area lying above x-axis and included between the circle $x^2 + y^2 = 8x$ and the parabola $y^2 = 4x$. ▶ Watch Free Video Solution on Doubtnut
47	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 8** In Figure, AOBA is the part of the ellipse $9x^2 + y^2 = 36$ in the first quadrant such that $OA = 2 \; and$ $OB = 6$. Find the area between the arc AB and the chord AB. ▶ Watch Free Video Solution on Doubtnut

|	
48	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 9** Using integration find the area of region bounded by the triangle whose vertices are (1, 0), (2, 2) and (3, 1). ► Watch Free Video Solution on Doubtnut
49	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 10** Find the area of the region enclosed between the two circles: $x^2 + y^2 = 4$ and $(x - 2)^2 + y^2 = 4$. ► Watch Free Video Solution on Doubtnut
50	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 11** Find the area of the parabola $y^2 = 4ax$ bounded by its latus rectum. ► Watch Free Video Solution on Doubtnut
51	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 12** Find the area of the region bounded by the line $y = 3x + 2$, the x-axis and the ordinates $x = 1 \ and$ $x = 1$. ► Watch Free Video Solution on Doubtnut
52	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 13** Find the area bounded by the curve $y = \cos x$ between $x = 0$ and $x = 2\pi$. ► Watch Free Video Solution on Doubtnut
53	**NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 13** Prove that the curves $y^2 = 4x$ and $x^2 = 4y$ divide the area of the square bounded by $x = 0, \ x$ $= 4, \ y$ $= 4 \ and \ y$ $= 0$ into three equal parts.
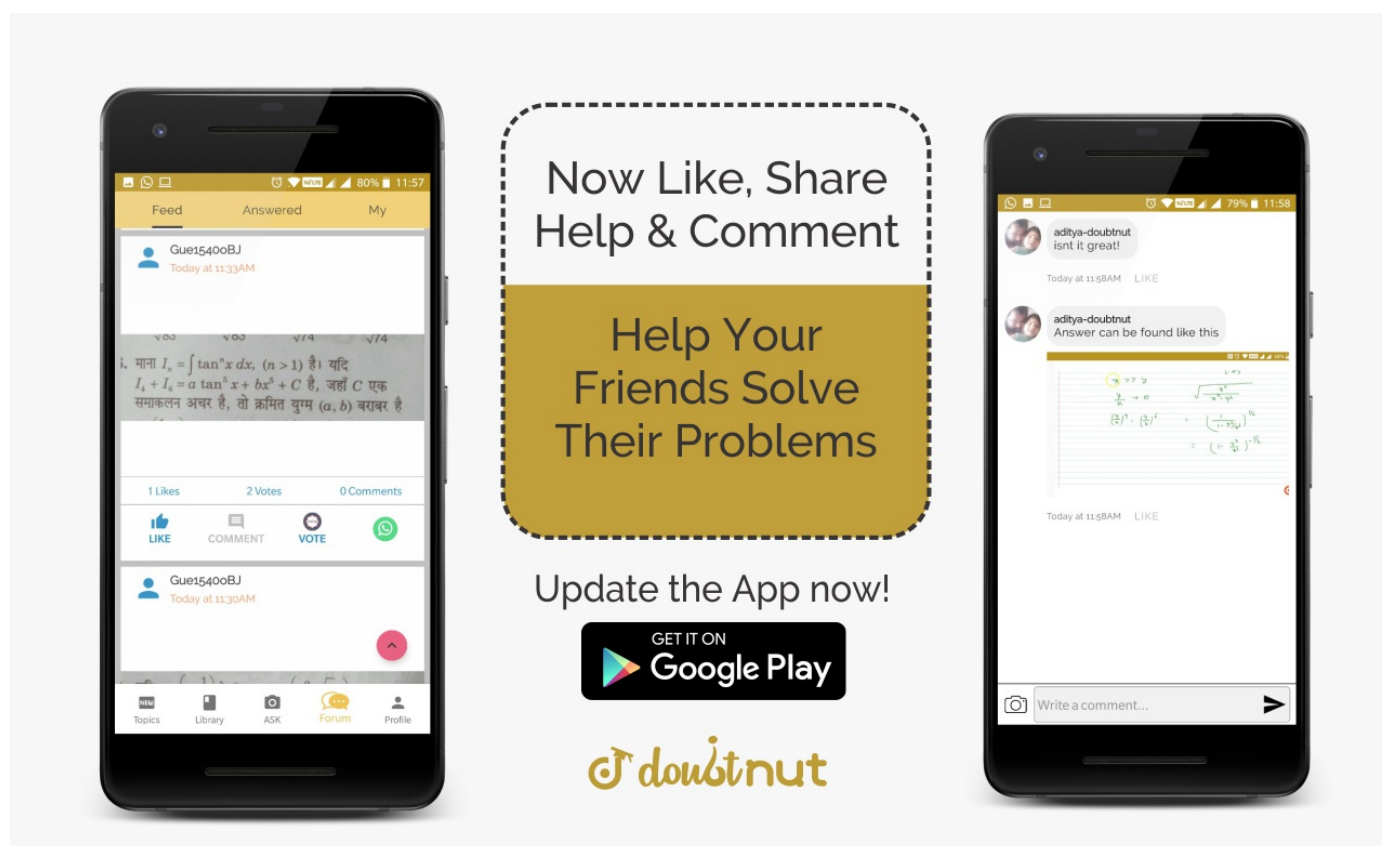
NCERT - CLASS 12 - CHAPTER 8 APPLICATION OF INTEGRALS - SOLVED EXAMPLES - Q 14

Find the area of the region
$$\{(x, y): 0 \le y \le x^2$$
$$+ 1, 0 \le y \le x$$
$$+ 1, 0 \le x \le 2\}$$

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