AGYAT GUPTA (TARGET MATHEMATICS)
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PREMIER INSTITUTE for X , XI & XII .

CLASS XII

DEFINITE INTEGRAL

Q.1	Evaluate $\int_{-1}^{1}(x-[x])\,dx$.
Q.2	Evaluate: $\int_{0}^{\pi/2}(2\log\sin x-\log\sin 2x)dx.$
Q.3	Evaluate: $\int_{-\pi/2}^{\pi/2}\log\left(\frac{2-\sin x}{2+\sin x}\right)dx.$
Q.4	If f (a + b – x) = f (x) , prove that $\int_{a}^{b}xf(x)dx=\frac{a+b}{2}\int_{a}^{b}f(x)dx$.
Q.5	Evaluate : $\int_{-1}^{1}x^{17}\cos^4 x\,dx$.
Q.6	Write the value of $\int_{\frac{-\pi}{2}}^{\frac{\pi}{2}}\sin^5 x dx$.
Q.7	Evaluate : $\int_{0}^{\pi/2}\log\left(\frac{4+3\sin x}{4+3\cos x}\right)dx$.
Q.8	Evaluate $\int_{0}^{2\pi}\frac{dx}{1+e^{\sin x}}$.
Q.9	Evaluate: $\int_{0}^{a}\frac{1}{x+\sqrt{a^2-x^2}}dx.$
Q.10	If $\int_{0}^{k}\frac{dx}{2+8x^2}=\frac{\pi}{16}$. Find the value of k .
Q.11	Evaluate: $\int_{0}^{2}x\sqrt{(2-x)}dx.$
Q.12	Evaluate: $\int_{-\pi/2}^{\pi/2}\sin\lvert x\rvert dx.$
Q.13	Evaluate: $\int_{0}^{\pi/4}\log(1+\tan\theta)\,d\theta$.
Q.14	Evaluate: $\int_{\pi/3}^{\pi/2}\frac{\sqrt{1+\cos x}}{(1-\cos x)^{3/2}}dx.$
Q.15	Evaluate $\int_{0}^{2}\lvert x^2+2x-3\rvert dx$.
Q.16	**Evaluate** $\int_{0}^{1.5}[x^2]dx$, where [.] denotes the greatest integer function .
Q.17	Evaluate $\int_{1}^{4}(\lvert x-1\rvert+\lvert x-2\rvert+\lvert x-3\rvert)dx.$
Q.18	Evaluate $\int_{1}^{2}(x^2+x+2)dx$ as a limits of sum .
Q.19	Evaluate: $\int_{0}^{\frac{\pi}{2}}\frac{\cos^2 x}{\cos^2 x+4\sin^2 x}dx$.
Q.20	Evaluate: $\int_{0}^{\pi/2}\sin 2x\tan^{-1}(\sin x)\,dx$.
Q.21	Evaluate: $\int_{0}^{\pi}\frac{x}{a^2\cos^2 x+b^2\sin^2 x}dx.$
Q.22	Evaluate: $\int_{-1}^{\frac{1}{2}}\lvert x\cos(\pi x)\rvert dx$.
Q.23	Evaluate: $\int_{0}^{a}\sin^{-1}\sqrt{\frac{x}{a+x}}dx=\frac{a}{2}(\pi-2)$.
Q.24	Evaluate: $\int_{0}^{\pi}x\log\sin x\,dx$.

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Q.25	Evaluate: $\int_0^1 \sin^{-1}\left(x\sqrt{1-x}-\sqrt{x}\sqrt{1-x^2}\right)dx$.
Q.26	Evaluate : $\int_1^3 \left(5x^2-e^x+4\right)dx$ as a limit of sums
Q.27	Evaluate: $\int_0^{\pi} \frac{xdx}{1-\cos\alpha\sin x}$.
Q.28	Evaluate : $\int_{-\pi}^{\pi} \frac{2x(1+\sin x)}{1+\cos^2 x}dx.$
Q.29	Evaluate $\int_0^{\pi} \frac{xdx}{(a^2\cos^2 x+b^2\sin^2 x)^2}$.
Q.30	Evaluate: $\int_{-a}^{a} \sqrt{\frac{a-x}{a+x}}dx.$.
Q.31	Evaluate : $\int_1^3 \left(2x^2+3x+7\right)dx$ as limit of sums.
Q.32	If $\int_0^1 (3x^2+2x+k)dx=0$, find the value of k.
Q.33	Evaluate: $\int_0^{3/2} \left\|x\cos\ \pi x\right\|dx$.
Q.34	Evaluate $\int_0^1 \frac{x}{x^2+1}dx.$
Q.35	Evaluate: $\int_0^{\pi} \frac{x}{a^2-\cos^2 x}dx$.
Q.36	Evaluate : $\int_0^{\pi/2} \frac{x\sin x\cos x}{\sin^4 x+\cos^4 x}dx$.
Q.37	Find $\int_{-\pi}^{\pi} \left(\sin^{-93} x+x^{295}\right)dx$.
Q.38	Evaluate: $\int_1^3 \left(5x^2-e^{2x-5}+4\right)dx$, as limit of sums.

Q.39	Evaluate : $\int_0^{\pi/2} \left(\sqrt{\tan\ x}+\sqrt{\cot\ x}\right)dx$.
Q.40	Evaluate: $\int_{-\pi/4}^{\pi/4} \frac{x+\pi/4}{2-\cos 2x}dx.$
Q.41	**Evaluate:** $\int_0^{\frac{\pi}{4}} \sqrt{\tan x}dx$
Q.42	Evaluate: $\int_0^{2\pi} \frac{\sin 2x}{a-b\cos x}dx.$
Q.43	Evaluate: $\int_a^b \sqrt{\frac{x-a}{b-x}}dx.$
Q.44	Evaluate: $\int_0^{\frac{\pi}{2}} \sqrt{\tan x}dx.$
Q.45	Evaluate: $\int_0^{\pi} \frac{x}{4-\cos^2 x}dx.$
Q.46	Evaluate: $\int_0^{\infty} \frac{x}{(1+x)(1+x^2)}dx.$
Q.47	Evaluate: $\int_1^5 \left\|x^2-5x+6\right|dx.$
Q.48	If $f(x)$ is a continuous function defined on $[0,2a]$, *then* prove that $\int_0^{2a} f(x)dx=\begin{cases}2\int_0^a f(x)dx, if\ f(2a-x)=f(x)\\ 0\qquad ,if\ f(2a-x)=-f(x)\end{cases}$.
Q.49	Evaluate : $\int_0^{\pi/2} \frac{x}{\sin x+\cos x}dx$.
Q.50	If $f(x)$ is a continuous function defined on $\int_{-a}^{a} f(x)dx=\begin{cases}2\int_0^a f(x)dx, if\ f(-x)=f(x)\\ 0\qquad ,if\ f(-x)=-f(x)\end{cases}$.

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Q.51	Evaluate $\int_{-1}^{\frac{3}{2}} \lvert x \sin(\pi x)\rvert dx$.
Q.52	Evaluate $\int_0^{\pi} \frac{e^{\cos x}\,dx}{e^{\cos x}+e^{-\cos x}}$.
Q.53	**Evaluate:** $\int_0^1 x(\tan^{-1}x)^2 dx$
Q.54	Evaluate, $\int_0^1 [5x]dx$ (where [x] is greatest integer function)
Q.55	Evaluate : $\int_0^{\pi/2} x\cot x\,dx$.
Q.56	Prove that : $\int_0^{\pi/2} \frac{\sqrt{\cos x}}{\sqrt{\sin x}+\sqrt{\cos x}}dx = \frac{\pi}{4}$.
Q.57	Evaluate: $\int_0^{\pi} \frac{x\tan x}{\sec x \operatorname{cosec} x}dx.$
Q.58	Evaluate: $\int_0^1 \cot^{-1}(1-x+x^2)dx.$
Q.59	Evaluate: $\int_0^{\pi} \frac{x\sin x}{1+\sin x}dx.$
Q.60	Evaluate: $\int_0^{\pi} x\sin x\cos^4 x dx.$
Q.61	Evaluate: $\int_0^{\pi/2} \frac{x\sin x\cos x}{\sin^4 x+\cos^4 x}dx.$
Q.62	Prove that $\int_0^{\pi/2} \log\sin x dx = \int_0^{\pi/2} \log\cos x dx = -\frac{\pi}{2}\log 2.$
Q.63	Evaluate: $\int_0^{\pi} \log(1+\cos x)dx.$

Q.64	Evaluate: $\int_0^{\pi} \frac{x\tan x}{\sec x+\tan x}dx.$
Q.65	Evaluate: $\int_0^{\pi/2} \frac{\sin x-\cos x}{1+\sin x\cos x}dx.$
Q.66	Evaluate: $\int_0^{\pi/2} (2\log\sin x-\log\sin 2x)dx.$
Q.67	Evaluate: $\int_0^1 x(1-x)^n dx.$
Q.68	Evaluate: $\int_0^{\pi/2} \frac{\sin x\cos x}{1+\sin^4 x}dx.$
Q.69	Evaluate $\int_0^{\pi/2} \frac{\cos x}{\left(\cos\frac{x}{2}+\sin\frac{x}{2}\right)^3}dx..$
Q.70	Evaluate: $\int_0^{\pi/4} \frac{\tan^3 x}{1+\cos 2x}dx.$
Q.71	Evaluate $\int_0^1 \frac{1-x^2}{x^4+x^2+1}dx.$
Q.72	Evaluate: $\int_0^{\pi/2} \frac{\cos x}{1+\cos x+\sin x}dx$.
Q.73	Evaluate $\int_0^{\pi/2} \sqrt{\cos\theta}\sin^3\theta d\theta.$
Q.74	Evaluate $\int_0^{\pi/2} \frac{\cos\theta}{(1+\sin\theta)(2+\sin\theta)}d\theta$.
Q.75	Evaluate $\int_0^1 \frac{x\tan^{-1}x}{(1+x^2)^{3/2}}dx..$
Q.76	Evaluate $\int_0^{1/\sqrt{2}} \frac{\sin^{-1}x}{(1-x^2)^{3/2}}dx.$

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Q.77	Evaluate $\int_0^{\pi/4} \frac{\sin x + \cos x}{9 + 16\sin 2x}\,dx.$
Q.78	Evaluate: $\int_0^1 \frac{\log(1+x)}{(1+x^2)}\,dx$.
Q.79	Evaluate: $\int_0^{\pi/2} \left(\sqrt{\tan x} + \sqrt{\cot x}\right)dx.$.
Q.80	Evaluate $\int_0^{\pi} \frac{1}{5 + 4\cos x}\,dx.$
Q.81	**Evaluate:** $\int_{-1}^{1} f(x)dx,$ where f(x)=$\begin{cases} 1-2x, when x \le 0 \\ 1+2x, when x \ge 0 \end{cases}$.
Q.82	**Evaluate:** $\int_1^3 f(x)dx,$ where f(x) =$\begin{cases} x-8, when 1 \le x \le 2 \\ -2x, when 2 \le x \le 3 \end{cases}$.
Q.83	**Evaluate:** $\int_0^9 f(x)dx$, where f(x)=$\begin{cases} \sin x, when 0 \le x \le \frac{\pi}{2} \\ 1, when \frac{\pi}{2} \le x \le 5 \\ e^{x-5}, when 5 \le x \le 9 \end{cases}$.
Q.84	**Evaluate:** $\int_0^4 \left\|x^2 - 5x + 6\right\|dx$
Q.85	**Evaluate:** $\int_0^{\frac{\pi}{2}} \left|\sin x - \cos x\right|dx$.
Q.86	**Evaluate:** $\int_1^4 f(x)dx$,where f(x)=$\left|x-1\right| + \left|x-2\right| + \left|x-3\right|$.
Q.87	**Evaluate:** $\int_{-1}^{2} f(x)dx$, where f(x)=$\left|x+1\right| + \left|x\right| + \left|x-1\right|$.

Q.88	**Evaluate:** $\int_{\frac{-\pi}{2}}^{\frac{\pi}{2}} \left(\sin\left|x\right| - \cos\left|x\right|\right)dx$
Q.89	**Evaluate:** $\int_{\frac{-\pi}{2}}^{\frac{\pi}{2}} \left(2\sin\left|x\right| + \cos\left|x\right|\right)dx$.
Q.90	**Evaluate:** If $\int_a^b x^3 dx = 0$ and $\int_a^b x^2 dx = \frac{2}{3}$, find the value of a & b? .
Q.91	**Evaluate:** $\int_0^{\frac{\pi}{2}} \frac{\cos x}{5 + 4\sin x}\,dx$.
Q.92	**Evaluate:** $\int_0^{\frac{\pi}{4}} \frac{\sin 2x}{\sin^4 x + \cos^4 x}\,dx$
Q.93	**Evaluate:** $\int_0^1 x\sqrt{\frac{1-x^2}{1+x^2}}\,dx$
Q.94	**Evaluate:** $\int_0^{\frac{\pi}{4}} \frac{\sin x + \cos x}{9 + 16\sin 2x}\,dx$
Q.95	**Evaluate:** $\int_0^{\pi/2} \frac{\sin x \cos x}{\cos^2 x + 3\cos x + 2}\,dx$
Q.96	**Evaluate:** $\int_0^1 x\tan^{-1} x\,dx$
Q.97	**Evaluate:** $\int_0^{1/2} \frac{\sin^{-1} x}{(1-x^2)^{3/2}}\,dx$
Q.98	**Evaluate:** $\int_0^{1/\sqrt{2}} \frac{\sin^{-1} x}{(1-x^2)^{3/2}}\,dx$

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Q.99	**Evaluate:** $\int_0^1 \sin^{-1}\left(\frac{2x}{1+x^2}\right)dx$
Q.100	**Evaluate:** $\int_0^\infty \frac{x\tan^{-1}x}{(1+x^2)^2}dx$
Q.101	**Evaluate:** $\int_0^{\pi/2} \frac{\sqrt{\sec x}}{\sqrt{\sec x}+\sqrt{\operatorname{cosec} x}}dx$
Q.102	**Evaluate:** $\int_0^5 \frac{\sqrt[4]{x+4}}{\sqrt[4]{x+4}+\sqrt[4]{9-x}}dx$
Q.103	**Evaluate:** $\int_0^\pi \sin^{2m}x\cos^{2m+1}x dx$
Q.104	**Evaluate:** $\int_0^{2\pi} \frac{\sin 2\theta}{a-b\cos\theta}d\theta$
Q.105	**Evaluate:** $\int_0^{\pi/2} \sin 2x.\log\tan x dx$
Q.106	**Evaluate:** $\int_0^1 \log\left(\frac{1}{x}-1\right)dx$
Q.107	**Evaluate:** $\int_0^{\pi/2} \frac{x}{\sin x+\cos x}dx$
Q.108	**Evaluate:** $\int_0^\pi \frac{x\tan x}{\sec x+\tan x}dx$
Q.109	**Evaluate:** $\int_0^{2\pi} \frac{x\cos x}{1+\cos x}dx$
Q.110	**Evaluate:** $\int_0^\pi \frac{x\tan x}{\sec x\operatorname{cosec} x}dx$
Q.111	**Evaluate:** $\int_0^{\pi/2} \frac{x\sin x\cos x}{\sin^4 x+\cos^4 x}dx$
Q.112	**Evaluate:** $\int_0^\pi x\sin x\cos^4 x dx$
Q.113	**Evaluate:** $\int_0^\pi \frac{x\sin x}{1+\cos^2 x}dx$
Q.114	**Evaluate:** $\int_0^{\pi/2} \frac{x}{1+\sin x+\cos x}dx$
Q.115	**Evaluate:** $\int_0^\pi \frac{x}{1+\cos^2 x}dx$
Q.116	**Evaluate:** $\int_0^{\pi/2} \frac{x\sin 2x}{\cos x+\sin x}dx$
Q.117	**Evaluate:** $\int_0^{\pi/2} \frac{\sin^2 x}{\cos x+\sin x}dx$
Q.118	**Evaluate:** $\int_0^{\pi/2} \frac{\cos x}{1+\cos x+\sin x}dx$
Q.119	**Evaluate:** $\int_0^{\pi/2} (2\log\sin x-\log\sin 2x)dx$
Q.120	**Evaluate:** $\int_2^3 \frac{\sqrt{5-x}}{\sqrt{x}+\sqrt{5-x}}dx$
Q.121	**Evaluate:** $\int_2^5 \frac{\sqrt{x}}{\sqrt{x}+\sqrt{7-x}}dx$
Q.122	**Evaluate:** $\int_{\pi/6}^{\pi/3} \frac{1}{1+\sqrt{\cot x}}dx$
Q.123	**Evaluate:** $\int_{-\pi/4}^{3\pi/4} \frac{\sqrt{\tan x}}{1+\sqrt{\tan x}}dx$
Q.124	If $f(x)$ is a continuous function defined

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	on $\int_{-a}^{a} f(x)dx = \begin{cases} 2\int_{0}^{a} f(x)dx, if\ \ f(-x)=f(x) \\ 0 \qquad\quad , if\ \ f(-x)=-f(x) \end{cases}$. Prove it .
Q.125	**Evaluate:** $\int_{-\pi/4}^{\pi/4} x^4 \sin x dx$
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AREA BOUNDED BY A CURVE

Q.1	Make a rough sketch of the region, given below and find its area using integration. $\{(x,y): 0 \le y \le x^2+1; 0 \le y \le x+1; 0 \le x \le 2\}$.
Q.2	Find the area of the region bounded by the two parabolas $x^2 = y$ & $y^2 = x$.
Q.3	Using integration, find the area of the triangle bounded by the lines x + 2y = 2, y – x = 1 and 2x + y = 7.
Q.4	Find the area of the region bounded by $y^2 = 4x$, x = 1, x = 4 and x-axis in the first quadrant.
Q.5	Using integration, find the area of the triangle bounded by the lines y = 2x + 1, y = 3x +1 and x = 4.
Q.6	Find the area of the region bounded by the curve $y^2 = 4a^2(x-1)$ and the lines $x = 1$ & $y = 4a$.
Q.7	Find the area of the region enclosed between the curves $y = \sin x$ & $y = \cos x$ for $0 \le x \le \frac{\pi}{2}$.
Q.8	Sketch the region common to the parabola $y = 2x - x^2$ and the line y = - x. Also, find the area of the region using integration.
Q.9	Sketch the graph $y = 1 + \lvert x+1 \rvert$. Evaluate $\int_{-3}^{3} \{1 + \lvert x+1 \rvert\} dx$. What does this value represent on the graph?
Q.10	
Q.11	Find the area of the smaller region bounded by the ellipse $9X^2 + 25Y^2 = 225$ and the line 3x + 5y = 15.
Q.12	Find the area of the region $\{(x,y): x^2 + y^2 \le 2ax, y^2 \ge ax, x \ge 0, y \ge 0\}$.
Q.13	Draw a rough sketch of $y^2 = x+1$ and $y^2 = -x+1$ and determine the area enclosed by the two curves.
Q.14	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, y = 0 into three equal parts.
Q.15	Using integration, find the area of the triangle whose vertices are A (2, 0), B (4,5) and C (3 ,- 2).
Q.16	Find the area bounded by the curves $y = 6x - x^2$ & $y = x^2 - 2x$.
Q.17	Using integration, find the area bounded by the curve $x^2 = 4y$ and the straight line x = 4y – 2.
Q.18	Sketch the region common to the circle $x^2 + y^2 = 16$ and the parabola $x^2 = 6y$ .Also, find the area of the region using integration.
Q.19	Using integration, find the area of the region curve $y = x^2 + 2$, y = x , x = 0 and x = 3 .
Q.20	Find the area of the region $\{(x,y): x^2 + y^2 \le 1 \le x + y\}$.
Q.21	Find the area of the region $\{(x,y): x^2 \le y \le \lvert x \rvert\}$.
Q.22	Sketch the region bounded by $y = 2x - x^2$ and the x – axis and find its area using integration.
Q.23	Find the area of the region included between the parabolas $y^2 = 4ax$ & $x^2 = 4ay$. where $a \rangle 0$.
Q.24	Using integration, find the area of the two parabolas $4y^2 = 9x$ & $3x^2 = 16y$ .Also find the angle between two curves .
Q.25	Using integration, find the area of the triangle whose vertices are A (3, 0), B (4,6) and C(6 , 2).
Q.26	Using integration, find the area of the region curve $y^2 = 4a^2(x-3)$ and the lines x = 3 and y = 4a .
Q.27	Find the area bounded by the curve $4x = y^2$ and the straight line

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	$2x = y + 4$.
Q.28	Make a rough sketch of the region given below and find its area using integration. $\{(x, y) : 0 \le y \le x^2 + 3; 0 \le y \le 2x + 3; 0 \le x \le 3\}$.
Q.29	Find the area of the region bounded by the curve $y^2 = 2y - x$ and the y-axis.
Q.30	Find the area of the region $\{(x, y) : y^2 \le 4x, 4x^2 + 4y^2 \le 9\}$.
Q.31	Find the area of the origin : $\{(x, y) : 0 \le y \le x^2, 0 \le y \le x + 2; 0 \le x \le 3\}$.
Q.32	Find the area cut off the parabola $4y = 3x^2$ by the straight line $2y = 3x + 12$.
Q.33	Sketch the graph $f(x) = \begin{cases} \lvert x - 2\rvert + 2 & x \le 2 \\ x^2 - 2 & x > 2 \end{cases}$ .Evaluate $\int_0^4 f(x)dx$. What does this value represent on the graph?
Q.34	Find the area lying above x-axis and included between the circle $x^2 + y^2 = 2ax$ and the parabola $y^2 = ax$.
Q.35	Draw the rough sketch of the region enclosed between the circles $x^2 + y^2 = 4$ and $(x-2)^2 + y^2 = 1$. Using integration, find the area of the enclosed region .
Q.36	Using integration, find the area of the region $\{(x, y) : \lvert x-1\rvert \le y \le \sqrt{5-x^2}\}$. = $\frac{5\pi}{4} - \frac{1}{2}$
Q.37	Using integration, find the area of the region enclosed between two circles $x^2 + y^2 = 1$ and $(x - 1)^2 + y^2 = 1$.
Q.38	Sketch the region common to the circle $x^2 + y^2 = 16$ and the parabola $x^2 = 6y$ .Also, find the area of the region using integration.
Q.39	Find the area of the smaller region bounded by the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and the straight line $\frac{x}{a} + \frac{y}{b} = 1$.
Q.40	Sketch the region common to the circle $x^2 + y^2 = 25$ and the parabola $y^2 = 8x$. Also , find the area of the region using integration.
Q.41	Using integration find the area between curve $y^2 = x$ and the line $x + y = 2$.
Q.42	Using integration find the area between curve $y^2 = x$ and the line $x + y = 2$ and x axis .
Q.43	Draw the rough sketch of the region enclosed between the circles $x^2 + y^2 = 9$ and $(x-3)^2 + y^2 = 9$. Using integration, find the area of the enclosed region.
Q.44	Find the area of the smaller region bounded by the ellipse $9X^2 + 16Y^2 = 114$ and the line 3x + 4y = 12.
Q.45	Using integration, find the area of the triangle whose vertices are A (2, 1), B (3,4) and C(5 , 2).
Q.46	Draw a rough sketch of the curves $y = \sin x$ & $y = \cos x$ *as* x varies from 0 to $\frac{\pi}{2}$ and find the area of the region enclosed by them and Y– axis.
Q.47	Using integration find the area of the region bounded by the parabola y – 1 = x , x axis and the line x = -2 and x = 3 .
Q.48	Show that the area enclosed by the circle $x^2 + y^2 = 64a^2$ and the parabola $y^2 = 12ax$ is $a^2\left(\frac{16}{\sqrt{3}} + \frac{64\pi}{3}\right)$
Q.49	Using integration, find the area of the triangle bounded by the lines 4 = 2x + y , 2y = 3x - 6 and x – 3 y + 5 = 0 .
Q.50	Using integration find the area bounded by the curve $\lvert x\rvert + \lvert y\rvert = 1$.
Q.51	Draw a rough sketch of the curve y = $\sqrt{3x+4}$ between x = 0 and x = 4 and find the area under the curve and above the x-axis.
Q.52	Draw a rough sketch of the curves $y = \sin x$ & $y = \cos x$ *as* x varies from 0 to

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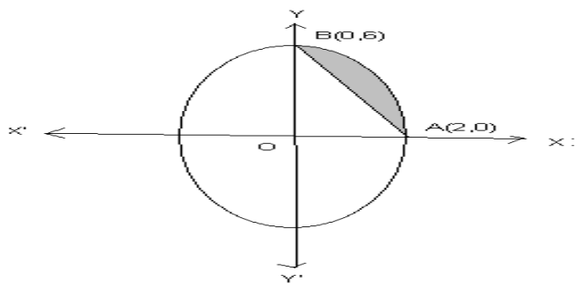
	$\frac{\pi}{2}$ and find the area of the region enclosed by them and (i) x – axis (ii) y axis (iii) x = 0 & x = $\frac{\pi}{2}$.
Q.53	Using integration, find the area lying above x-axis and included between the circle $x^2 + y^2 = 8x$ and interior of the parabola $y^2 = 4x$.
Q.54	Using integration, find the area lying above x-axis and included between the circle $x^2 + y^2 = 8x$ and the parabola $y^2 = 4x$.
Q.55	Sketch the region lying in the first quadrant and bounded by $y = 4x^2, x = 0$, y = 1 and y = 4 . Find the area of the region using integration . ans
Q.56	In fig. AOBA is a 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. 
Q.57	Evaluate the area of the region bounded by the curve $y = 2\sqrt{1-x^2}$ and the x-axis , after drawing a rough sketch of the same .
Q.58	Find the area lying above *x*-axis and included between the circle $x^2 + y^2 = 2ax$ and the parabola $y^2 = ax$.
Q.59	Find the ratio of the areas into which curve $y^2 = 6x$ divides the region bounded by $x^2 + y^2 = 16$.
Q.60	Using integration find the area of the region bounded by the parabola $x^2 + y^2 = 4$, x axis and the line $x = \sqrt{3}\,y$ in the first quadrant .
Q.61	Find the area of the region bounded by the line 2y=-x+8, the x-axis and the lines x=2 and x=4.
Q.62	Find the area of the region bounded by the curve y=x, the x-axis and the ordinates x=-1 and x=2.
Q.63	Find the area of the region bounded by the parabola $y^2 = 4x$ and its latus rectum.
Q.64	Calculate the area of the region bounded by the curve $y = 2\sqrt{1-x^2}$ and the x-axis from x=0 to x=1.
Q.65	Find the area of the region bounded by the curve $y = \sqrt{3x+4}$, above the x-axis and between the lines x=0 and x=4.
Q.66	Find the area of the region bounded by the curve $y^2 = 4x$ and the straight line y=2x-4.
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