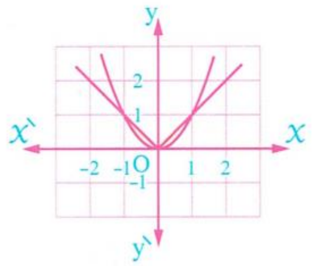
Choose the correct answer from the given ones :

(1) In the opposite figure :

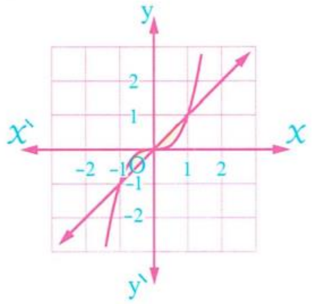


The area of the region bounded by the two curves $y = x^2$, $y = |x|$ equals ....

(a) $2\int_{-1}^{0}(x^2 - x)\,dx$ (b) $\int_{0}^{1}(x - x^2)\,dx$

(c) $2\int_{0}^{1}(x - x^2)\,dx$ (d) $\int_{-1}^{1}(x - x^2)\,dx$

(2) In the opposite figure :



The area of the region bounded by the curve $y = x^3$ and the straight line $y = x$ equals ....

(a) $\int_{-1}^{1}(x^3 - x)\,dx$ (b) $2\int_{0}^{1}(x^3 - x)\,dx$

(c) $\int_{0}^{1}(x - x^3)\,dx$ (d) $2\int_{0}^{1}(x - x^3)\,dx$

(3) The area of the region bounded by the straight lines $y = x$, $x = 2$, $y = 0$ equals .... square units.

(a) $\frac{1}{2}$ (b) 1 (c) 2 (d) 4

(4) The area of the region bounded by the curve $y = x^3$ and the straight lines $y = 0$, $x = 2$ equals .... square unit.

(a) 8 (b) 4 (c) 2 (d) 1

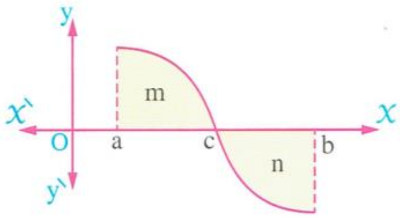
(5) The area of the region bounded by the straight lines $y = 2x - 3$, $y = x + 1$, $x = 2$ equals ....

(a) 2 (b) 3 (c) $\frac{9}{2}$ (d) 6

(6) The area of the region bounded by the curve $y = \sqrt{4 - x^2}$ and x-axis equals .... square units.

(a) 2 (b) 4 (c) 2π (d) 4π

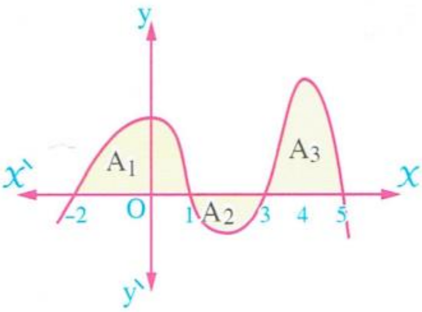
(7) In the opposite figure :



It is a part of a curve $f(x)$ in the interval $[a , b]$, then if the area m equals 5 square unit and area n equals 3 square unit , then $\int_{a}^{b} f(x)\,dx =$ ....

(a) -5 (b) 4 (c) 2 (d) 8

(8) In the opposite figure :



If $A_1 = 5$ square units , $A_2 = 2$ square units

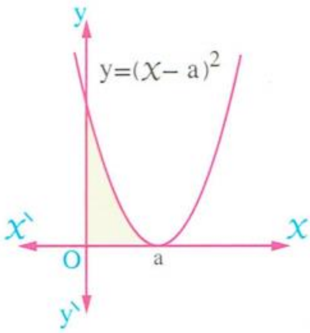
, $A_3 = 8$ square units

, then $\int_{-2}^{5} f(X)\, dX + \int_{-2}^{5} |f(X)|\, dX =$ ....

(a) 15 (b) 20

(c) 22 (d) 26

(9) In the opposite figure :



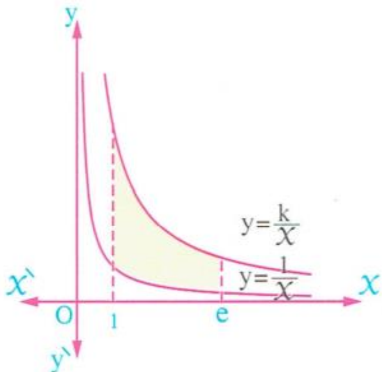
If the area of the shaded region = $\frac{8}{3}$ square units ,

then a = ...

(a) $\frac{1}{2}$ (b) 1

(c) $\frac{3}{2}$ (d) 2

(10) In the opposite figure :



If the area of the shaded region = 2 square units ,

then k = ...

(a) 2 (b) 3

(c) 4 (d) 5

(11) The area of the region bounded by the curve $X y = 4$, X-axis and the two straight lines $X = 1$, $X = 3$ equals ....

(a) 2 ln 3 (b) 4 ln 3 (c) 3 ln 3 (d) 3 ln 4

مع أطيب الأمنيات للجميع بالتفوق والحصول علي الدرجات النهائية

مستر محمد عبدالعال

خبير مادة الرياضيات لمدة 29 عام في دولة الإمارات العربية

للتواصل 0507374551

Find in each of the following the area of the plane region bounded by :

(1) The curve : $y = 2 - x^2$ and the straight line : $x + y = 0$ « $\frac{9}{2}$ square units »

(2) The two curves : $y + x^2 = 6$, $y + 2x - 3 = 0$ « $\frac{32}{3}$ square units »

(3) The curves of the two functions $f(x) = 2x^2$, $g(x) = 2x + 4$ « 9 square units »

(4) The two curves : $y = x^2$, $y = 2 - x$ « $4\frac{1}{2}$ square units »

(5) The curve : $y = 9 - x^2$ and the straight line : $y = 5$ « $\frac{32}{3}$ square units »

(6) The curve : $y = -x^2 + 1$, and the straight line : $y = \frac{1}{2}x + 3$
and the two straight lines : $x = -2$, $x = 1$ « $\frac{33}{4}$ square units »

(7) The curve : $y = x^2 - x$ and the straight line : $y = 2x$
and the two straight lines : $x = -2$, $x = 3$ « $13\frac{1}{6}$ square units »

(8) The curve : $y = x^2 - 2x$ and the straight line : $y = x$ « $\frac{9}{2}$ square units »

(9) The curve : $y = 3\sqrt{x}$ and the straight line : $y = 3x$ « $\frac{1}{2}$ square units »

(10) The curve : $y_1 = \sqrt{x}$ and the straight line : $y_2 = x - 2$ and the y-axis.
« $5\frac{1}{3}$ square units »

(11) The two curves : $y = \frac{1}{4}x^2$ and $y = 2\sqrt{x}$ « $5\frac{1}{3}$ square units »

(12) The curves of the two functions $f(x) = x^2 - 2$, $g(x) = 3 - (x + 1)^2$
« 9 square units »

(13) The two curves : $y = 7 + 2x - x^2$, $y = (x - 1)^2$ « $21\frac{1}{3}$ square units »

(14) The two curves : $y = 9 - x^2$, $y = x^2 + 1$ and the two straight lines
$x = 0$, $x = 3$ « $15\frac{1}{3}$ square units »

(15) The two curves : $y = 9 - x^2$, $y = x^2 + 1$ and the x-axis
and the two straight lines $x = 0$, $x = 3$ « $\frac{22}{3}$ square units »

(16) The two curve : $y = \sqrt{x}$, $y = x^3$ « $\frac{5}{12}$ square units »

(17) The two curves : $y = x^3 - 4x$, $y = 4x - x^3$ « 16 square units »

(18) The two curves : $y = \sin x$, $y = \cos x$ and the
two straight lines : $x = 0$, $x = \frac{\pi}{4}$ « $(\sqrt{2} - 1)$ square units »

(19) The two curves : $y = x^4 + 1$, $y = 2x^2$ « $\frac{16}{15}$ square units »

(20) The curve : $y = x^3$ and the two straight lines $y = 8$ and $x = 0$ « 12 square units »

(21) The curve : $y = x^3 - x$ and the straight line : $y = 0$ « $\frac{1}{2}$ square units »

Find in each of the following the area of the plane region bounded by :

(1) The straight lines : $x + 2y = 9$, $x = 1$, $x = 3$, $y = 0$ « 7 square units »

(2) The curve : $y = x^2 - 5x$ and the x-axis « $20\frac{5}{6}$ square units »

(3) The curve : $y = 5 - x^2$ and the x-axis and the two straight lines : $x = -2$ and $x = 1$ « 12 square units »

(4) The curve : $y = 6x - x^2$ and the straight line $y = 0$ « 36 square units »

(5) The curve : $y = 3 - 2x - x^2$ and x-axis «$\frac{32}{3}$ square units »

(6) The curve : $y = 3 + 2x - x^2$ and the straight lines $x = -1$, $x = 4$, $y = 0$ « 13 square units »

(7) The curve : $y = x^2 + 3$ and the x-axis , the y-axis and the straight line : $x = 3$ « 18 square units »

(8) The curve of the function $f : f(x) = 3x^2 + 1$ and the x-axis and the two straight lines : $x = -1$, $x = 2$ « 12 square units »

(9) The curve : $y = \sqrt{4x}$ and the straight line $x = 9$ and $y = 0$ « 36 square units »

(10) The curve : $y = \sqrt{x + 4}$ and the straight lines : $x = 0$, $x = 5$ and $y = 0$ «$\frac{38}{3}$ square units »

(11) The curve : $y = \sqrt{2x + 4}$ and the straight line : $x = 0$, $y = 0$ «$\frac{8}{3}$ square units »

(12) The curve : $y = \sqrt{1 - x}$ and the straight line : $x = -3$ and $y = 0$ « $5\frac{1}{3}$ square units »

(13) The curve $f : f(x) = \sqrt[3]{2x + 2}$ and the straight line : $x = 3$ and above the x-axis. « 6 square units »

(14) The curve : $y = \frac{4}{x^2}$ and the straight lines $x = 1$, $x = 4$, $y = 0$ « 3 square units »

(15) The curve : $y = e^x$ and the straight lines : $x = 0$, $x = \ln 4$ and $y = 0$ « 3 square units »

(16) The curve : $y = e^{2x}$ and the straight lines : $x = 0$, $x = \ln 3$ and $y = 0$ « 4 square units »

(17) The curve : $y = \sin x$ and the straight lines : $x = 0$, $x = \frac{\pi}{2}$ and $y = 0$ « 1 square unit »

(18) The curve : $y = \cos x$ and the straight lines : $x = 0$, $x = \frac{\pi}{2}$ and $y = 0$ « 1 square unit »

Complete each of the following :

(1) $\int_{b}^{b} (5x^2+3)^4 \, dx =$ ....

(2) $\int_{e}^{e^2} \frac{dx}{x} d =$ ....

(3) If a function f is continuous on the interval $[2, 7]$

, then $\int_{2}^{7} f(x)\, dx + \int_{7}^{4} f(x)\, dx =$ ....

(4) If a function f is continuous on the interval $[1, 4]$

, then $\int_{1}^{4} f(x)\, dx + \int_{4}^{1} f(x)\, dx =$ ....

(5) If $\int_{1}^{4} f(x)\, dx + \int_{2b}^{8} f(x)\, dx = \int_{1}^{8} f(x)\, dx$, then value of b = ...

(6) If $\int_{0}^{k} (3x^2-1)\, dx = k^3 - 2$, then k = ...

(7) If $\int_{2}^{a} (4x-1)\, dx = 9$, $a \in \mathbb{Z}^+$, then a = ...

(8) If $\left(\int_{0}^{a} x\, dx\right)^3 = \int_{0}^{a} x^3\, dx$, $a \in \mathbb{R}^+$, then a = ...

(9) If $\int_{2}^{10} f(x)\, dx + \int_{8}^{11} f(x)\, dx + \int_{10}^{8} f(x)\, dx = 9$

, then $\int_{2}^{11} f(x)\, dx =$ ....

(10) $\int_{1}^{e} \ln x\, dx =$ ....

(11) $\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}} (x^3 + \sin x + \tan x)\, dx =$ ....

(12) If $\int_{\ln b}^{\ln a} e^x\, dx = 2$, $a^2 - b^2 = 12$, then a = ...

(13) $\int_{0}^{\frac{\pi}{6}} \sin^4 x\, dx + \int_{\frac{\pi}{6}}^{0} \cos^4 x\, dx =$ ....

(14) If $a < 2 < b$ and $\int_{a}^{b} |x-2|\, dx = 4$, then $\frac{a^2+b^2}{a+b} =$ ....

(15) $\int_{0}^{2} (x+6)^2 e^{x^2}\, dx - \int_{0}^{2} (x-6)^2 e^{x^2}\, dx =$ ....