

**Class : XI<sup>th</sup>**  
**Date :**

**Subject : Maths**  
**DPP No. :1**

## Topic :-Applications of Intergrals

1. Area bounded by the curve  $y = (x - 1)(x - 2)(x - 3)$  and  $x$ -axis lying between the ordinates  $x = 0$  and  $x = 3$  is equal to  
 a)  $9/4$                       b)  $11/4$                       c)  $11/2$                       d)  $7/4$
2. The area of the region bounded by the curves  $y = e^x$ ,  $y = \log_e x$  and lines  $x = 1$ ,  $x = 2$  is  
 a)  $(e - 1)^2$                       b)  $e^2 - e + 1$                       c)  $e^2 - e + 1 - 2\log_e 2$                       d)  $e^2 + e - 2\log_e 2$
3. The value of  $k$  for which the area of the figure bounded by the curve  $y = 8x^2 - x^5$ , the straight line  $x = 1$  and  $x = k$  and the  $x$ -axis is equal to  $16/3$   
 a) 2                      b)  $\sqrt[3]{8 - \sqrt{17}}$                       c) 3                      d) -1
4. The area bounded by the curve  $y = x$ ,  $x$ -axis and ordinates  $x = -1$  to  $x = 2$ , is  
 a) 0 sq unit                      b)  $1/2$  sq unit                      c)  $3/2$  sq unit                      d)  $5/2$  sq unit
5. The area (in square unit) of the region bounded by the curves  $2x = y^2 - 1$  and  $x = 0$  is  
 a)  $\frac{1}{3}$  sq unit                      b)  $\frac{2}{3}$  sq unit                      c) 1 sq unit                      d) 2 sq units
6. The area bounded by the curve  $y = 4x - x^2$  and the  $x$ -axis, is  
 a)  $\frac{30}{7}$  sq. units                      b)  $\frac{31}{7}$  sq. units                      c)  $\frac{32}{3}$  sq. units                      d)  $\frac{34}{3}$  sq. units
7. The volume of the solid generated by revolving the region bounded by  $y = x^2 + 1$  and  $y = 2x + 1$  about  $x$ -axis is  
 a)  $\frac{104\pi}{15}$  cu units                      b)  $\frac{42\pi}{15}$  cu units                      c)  $\frac{52\pi}{15}$  cu units                      d) None of these
8. The area bounded by the curves  $|x| + |y| \geq 1$  and  $x^2 + y^2 \leq 1$  is  
 a) 2 sq unit                      b)  $\pi$  sq unit                      c)  $(\pi - 2)$  sq unit                      d)  $(\pi + 2)$  sq unit
9. The area bounded by the curves  $y = \cos x$  and  $y = \sin x$  between the ordinance  $x = 0$  and  $x = \frac{3\pi}{2}$  is  
 a)  $(4\sqrt{2} - 2)$ sq units                      b)  $(4\sqrt{2} + 2)$ sq units                      c)  $(4\sqrt{2} - 1)$ sq units                      d)  $(4\sqrt{2} + 1)$ sq units
10. Area bounded by the curves  $y = \left[\frac{x^2}{64} + 2\right]$ ,  $y = x - 1$  and  $x = 0$  above  $x$ -axis is ( $[.]$  denotes the greatest integer function)  
 a) 2 sq unit                      b) 3 sq unit                      c) 4 sq unit                      d) None of these
11. The area bounded by the curve  $y^2 = 8x$  and  $x^2 = 8y$ , is

- a)  $\frac{16}{3}$  sq. units      b)  $\frac{3}{16}$  sq. units      c)  $\frac{14}{3}$  sq. units      d)  $\frac{3}{14}$  sq. units
12. The area enclosed between the curve  $y = \log_e(x + e)$  and the coordinate axis is  
a) 4 sq units      b) 3 sq units      c) 2 sq units      d) 1 sq unit
13. If area bounded by the curves  $y^2 = 4ax$  and  $y = mx$  is  $a^2/3$ , then the value of  $m$  is  
a) 2      b) -2      c) 1/2      d) 1
14. The area of the figure bounded by the curves  $y = |x - 1|$  and  $y = 3 - |x|$  is  
a) 2      b) 3      c) 4      d) 1
15. The area bounded by the curves  $y = \sqrt{5 - x^2}$  and  $y = |x - 1|$  is  
a)  $\left(\frac{5\pi}{4} - 2\right)$  sq units      b)  $\frac{(5\pi - 2)}{4}$  sq units      c)  $\frac{(5\pi - 2)}{2}$  sq units      d)  $\left(\frac{\pi}{2} - 5\right)$  sq units
16. Area bounded by the curve  $xy^2 = a^2(a - x)$  and  $y$ -axis, is  
a)  $\pi a^2/2$       b)  $\pi a^2$       c)  $3\pi a^2$       d)  $2\pi a^2$
17. The area of the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ , is  
a)  $\pi ab$       b)  $\frac{\pi}{4}(a^2 + b^2)$       c)  $\pi(a + b)$       d)  $\pi a^2 b^2$
18. The area bounded by the curve  $y = x^6(\pi - x)^8$  is  
a)  $\frac{\pi^{15} \times 3! \times 4!}{15!}$  sq unit      b)  $\frac{\pi^6 \times 6! \times 8!}{15!}$  sq unit      c)  $\frac{\pi^{15} \times 6! \times 8!}{15!}$  sq unit      d)  $\frac{\pi^8 \times 6! \times 8!}{15!}$  sq unit
19. The part of circle  $x^2 + y^2 = 9$  in between  $y = 0$  and  $y = 2$  is revolved about  $y$ -axis. The volume of generating solid will be  
a)  $\frac{46}{3}\pi$  cu units      b)  $12\pi$  cu units      c)  $16\pi$  cu units      d)  $28\pi$  cu units
20. The area of the region by curves  $y = x \log x$  and  $y = 2x - 2x^2$  is  
a)  $\frac{1}{2}$  sq units      b)  $\frac{3}{12}$  sq units      c)  $\frac{7}{12}$  sq units      d) None of these