Application of Definite Integration Question Bank
2nd Semester Diploma Engineering for All Branch

➢ Area under the Curve:

Exercise no.1:

Q.1. Obtain the area between line $y = 8x$, X-axis and ordinates at $x = 2$ and $x = 6$.

Q.2. Obtain the area between line $y = 2x$, X-axis and ordinates at $x = 1$ and $x = 3$.

Q.3. Find the area between line $y = x^3$, X-axis and ordinates at $x = 1$ and $x = 3$.

Q.4. Find the area between the parabola $y = 4x - x^2$ and the X-axis.

Q.5. Find the area bounded by the curve $y = x^2 - 4x$ with the X-axis.

Q.6. Find the area bounded by $y = 4x - x^2$ meeting the X-axis and the ordinate $x = 1, x = 3$.

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Q.7. Find the area enclosed by curve $y = 4 - x^2$ and X-axis.

Q.8. Find the area enclosed by curved $y = 4 - x^2$ and the line $x = 0, x = 2, y = 0$.

Q.9. Find the area X-axis bounded by $y = \sin x$ and the ordinates $x = \frac{\pi}{6}\ and\ x = \frac{\pi}{3}$

Q.10. Find the area under the curve $y = e^x$ from the ordinate $x = 0\ to\ x = \pi$

Q.11. Find the area under the curve $y = x^2$ from $x = 0\ to\ x = 3$ with x-axis.

Q.12. Find the area under the curve $y = \sin x$ from $x = 0, x = 2\pi$

Q.13. Find the area bounded by curve $y = 1 + x^3 + 2\sin x$ the x-axis and the ordinate $x = 0, x = \pi$.

Q.14. Find the area enclosed between the curve $y = 3x - 2 - x^2$ and x-axis

Q.15. Find the area of the region bounded by $x^2 = 16y, y = 1, y = 4$ and Y-axis in first quadrant.

Q.16. Find the area of the loop of curve $y^2 = x^2(1 - x)$

Q.17. By using method of integration find the area of circle $x^2 + y^2 = a^2$

Q.18. Find the area of circle $x^2 + y^2 = 25$ using integration.

Q.19. Find the area of circle $x^2 + y^2 = 16$ using integration.

Q.20. Find the area of ellipse $4x^2 + 9y^2 = 36$

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Q.21. Find the area enclosed by the curve $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ in first quadrant only.

Q.22. Using integration find area of ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$

Q.23. Find the area enclosed by the curve $\frac{x^2}{25}+\frac{y^2}{16}=1$ in first quadrant only.

Q.24. Find the area enclosed by the curve $\frac{x^2}{9}+\frac{y^2}{16}=1$ in first quadrant only

Q.25. Find the area of ellipse $\frac{x^2}{9}+\frac{y^2}{16}=1$

➢ **Area Between two curve or line**

Exercise No. 2: omgfreestudy.com

Q.1. Find the area Between $y=x^2$ and the line $y=x$.

Q.2. Find the area enclosed by $y^2=8x$ and the line $x=2$.

Q.3. Find the area under the parabola $y^2=4x$ bounded by the line $x=0, y=0, x=4$.

Q.4. Find area bounded by two curve $y^2=x$ and $x^2=y$

Q.5. Find area bounded by two curve $y^2=2x$ and $x^2=2y$

Q.6. Find the area bounded by the curve $y^2=4x$ and $x^2=4y$

Q.7. Find the area bounded between the parabola $y^2=9x$ and $x^2=9y$

Q.8. Find the area between the parabola $y=x^2+3$ and the line $y=x+3$

Q.9. Find the area between the parabola $y=x^2$ and the line $y=4$

Q.10. Find the area of region included between the parabola $y=x^2+1$ and a line $y=2x+1$

Q.11. Find the area bounded by $y^2=2x$ and $x-y=4$

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