

1. Evaluate the following
 - a. $\int_2^3 (3x^2 + 7x - 2) dx$
 - b. $\int_{-2}^2 (3x + 1) dx$
 - c. $\int_{-1}^4 (2x^3 + 5x^2 - 3x^{-2}) dx$
 - d. $\int_2^5 (x^{\frac{1}{2}} - x^{\frac{2}{3}})^2 dx$
 - e. $\int_1^2 (\sqrt{x} + \frac{1}{x^2} + \frac{5}{3}x^2 + 4x^3) dx$
2. Find the area of the region R bounded by the curve and the positive x and y -axes
 - a. $y = -2x + 6$
 - b. $y = (3 - x)(x - 5)$
 - c. $y = -x^2 + 4$
 - d. $y = (x - 2)(x + 3)$
3. Find the area of A the region enclosed by the curve of equation $y = x(x^2 - 4)$, the x -axis and
 - a. the points $x = 0$ and $x = -2$
 - b. the points $x = 0$ and $x = 1$
 - c. the points $x = -2$ and $x = 2$
 - d. the points $x = 1$ and $x = 3$
4. Find the area of B the region enclosed by the curve of equation $y = (x - 3)(x + 2)(x - 4)$, the x -axis and
 - a. the points $x = 0$ and $x = -2$
 - b. the points $x = 0$ and $x = 4$
 - c. the points $x = -3$ and $x = 2$
 - d. the points $x = -3$ and $x = 5$
5. Find the area between the curves and the positive x - and y -axes.
 - a. $y = 12$ and $y = x^2 + 3$
 - b. $y = x^2 + 1$ and $y = 5$
 - c. $y = x^2$ and $y = 5$
 - d. $y = 3x - x^2$ and $y = 2$
6. Find the area between the curves
 - a. $y = 2x$ and $y = x^2 - 4$
 - b. $y = (x - 1)(5 - x)$ and $y = -\frac{1}{2}x + 4$
 - c. $y = -x + 2$ and $y = x^2 + 1$
 - d. $y = x^2$ and $y = -x(x - 2)$
7. Find the area between the curves
 - a. $y = 2x$ and $y = x^2 - 4$
 - b. $y = (x - 1)(5 - x)$ and $y = -\frac{1}{2}x + 4$
 - c. $y = -x + 2$ and $y = x^2 + 1$
 - d. $y = x^2$ and $y = -x(x - 2)$
8. Use the trapezium rule with (a) 4 strips and (b) 8 strips to estimate the area under the curve $y = 5^x$ between 2 and 6.
9. Use the trapezium rule to estimate the area under the curve $y = \sin(x)$ between 5° and 35° .
10. Find the area between the x -axis and the curve $y = 9 - x^2$ by
 - a. using the trapezium rule with 3 strips
 - b. using the trapezium rule with 6 strips
 - c. integration
11. Find the area between the $x = 2$ and $x = 4$ on the curve $y = (x^2 - 1)^{\frac{1}{2}}$ by
 - a. using the trapezium rule with 2 strips
 - b. using the trapezium rule with 4 strips