

WORKSHEET # VIII

1. Evaluate the following integrals

a) $\int \frac{\sec^2 x}{(\sec x + \tan x)^{9/2}} dx$ b) $\int_0^4 |x^3 - 5x^2 + 6x| dx$ c) $\int_0^\pi |\sin x + \cos x| dx$

2. Find the value of x what maximizes the value of integral and maximum value of integral which is the following

$$\int_x^{x+3} t(5-t) dt$$

3. Find the area of the region bounded by

$$x = y^2 + 1, \quad x = 5, \quad y = -3, \quad \text{and} \quad y = 3.$$

4. Find the area of the region bounded by

$$y = \frac{1}{x+2}, \quad y = (x+2)^2, \quad x = \frac{-3}{2}, \quad \text{and} \quad x = 1.$$

5. Find the area of the region R enclosed by the curves $y = \frac{x^2}{2} + 4$; and $y = |x^2 - 4|$

6. Find the area of the region R between the graphs of $x = 8 - y^2$ and $x = y^2 - 8$.

7. Find the area of the finite plane region bounded by the curve $y = x^3$ and the tangent line to that curve at the point $(1, 1)$.

8. The region under the graph $\frac{1}{x^2}$ on $[0, 4]$ is equal to be divided into two parts of equal area by

a — horizontal and b —vertical line. Where should the line be drawn ?

9. Find the area of the region between graphs of $y = x^3$ and $y = 3x^2 - 2x$ from 0 to 2.