

Problem Set Midterm

Problem 1

Find the integral

$$\int_0^{\frac{4}{\pi}} \frac{1 + \sin \theta}{\cos^2 \theta} d\theta$$

Problem 2

Find the integral

$$\int_0^1 x (\sqrt[3]{x} + \sqrt[4]{x}) dx$$

Problem 3

Find the integral

$$\int_0^{3\pi/2} |\sin x| \, dx$$

Problem 4

If a particle is moving along a straight line and its velocity is given by

$$v(t) = t^2 - 5t + 4, \quad 0 \leq t \leq 4.$$

Find its displacement and distance it travels on the time interval $[0, 4]$ are: