

Homework 02

(due day in two weeks, 4/21)

Problem 1: (40 points)

A function $f(x) = e^{-a|x|}$, $a > 0$, please find

(1) Fourier integral of $f(x)$

(2) Calculate $\int_0^{\infty} \frac{\cos(2x)}{x^2 + 4} dx$

Answer

Problem 2: (30 points)

Please find the 4th Maclaurin series of $\sqrt{x+1}$ and find its value at $\sqrt{0.9}$. Afterward, please show the approximation error in this case.

Answer

Problem 3: (30 points)

In order to move one cannon, two group of soldiers try to tug it, as shown in Fig.1. As the commander knows, the vector of one tugging group is (3,4) and the two tugging groups angle 45° . Please determine the vector of the cannon moving direction.

Answer

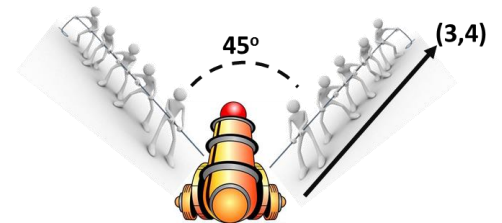


Fig.1