```
import csv
import numpy as nu
import scipy as sc
from scipy import linalg as la
from collections import namedtuple
import matplotlib.pyplot as pl
import sympy as sy
import math as ma
from datetime import time
import multiprocessing as mp
import os

LARGE_NUMBER = 1e8
STEP = 0.0001
DELTA = 1e-5
validDirections = {'u': [0, STEP], 'd': [0, -STEP], 'r': [STEP, 0], 'l': [-STEP, 0],
    'ur': [STEP, STEP], 'ul': [-STEP, STEP], 'dr': [STEP, -STEP], 'dl': [-STEP, -STEP]
DATASET_ID = 'A'
recogLineFile = 'results/recogLineOfNeResult' + DATASET_ID + '.csv'
figureFile = 'ResultFigure' + DATASET_ID + '.png'
plotAxisDict = {
    'A': [-10, 70, 50, 100],
    'B': [-13, 55, 38, 100],
    'C': [-10, 70, 10, 62],
    'D': [-10, 70, 50, 103]
}


# NOTE: - readFile operations:  **********************************************  reac

def readFileOfPoints(FILE):
    with open(FILE, 'rt') as file:
        lines = csv.reader(file, delimiter=' ')
        points = [  XYPoint([float(line[0]), float(line[1])]) for line in lines  ]
    return points


def readFileOfCorrectClasses(FILE):
    with open(FILE, 'rt') as file:
        lines = csv.reader(file, delimiter=' ')
        correctClasses = [  int(line[2]) for line in lines if line[2]  ]
    return correctClasses



# NOTE: - class definitions:  **********************************************  clas

class XYPoint():
```