

Assignment #1

1. The Gaussian density function is commonly used in engineering statistics. This function is defined in the equation that follows:

$$Y = \frac{1}{\sqrt{2\pi}} e^{-0.5x^2}$$

Write a program to read a value of X and compute the corresponding value of Y. Print the values in the following form:

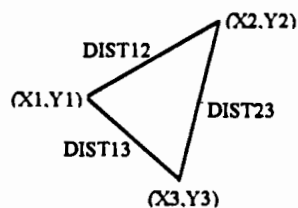
THE STANDARD NORMAL DENSITY FUNCTION EVALUATED
AT XXX.XX GIVES A VALUE OF XX.XXXXX

2. The distance between points with coordinates (XA, YA) and (XB, YB) is given By

$$\text{DISTANCE} = \sqrt{(XA - XB)^2 + (YA - YB)^2}$$

You are given the coordinates of three points (X1, Y1), (X2, Y2), (X3, Y3). Write a program to read the coordinates and do the following:

- a. calculate and print the distance DIST12 between points 1 and 2, the distance DIST13 between points 1 and 3, and the distance DIST23 between points 2 and 3.



- b. The area of a triangle can be computed from the following equation, where A, B, and C represent the sides of the triangle and s is equal to half of the sum of three sides of the triangle:

$$\text{area} = \sqrt{s(s - A)(s - B)(s - C)}$$

For the three vertices of a triangle (X1, Y1), (X2, Y2), (X3, Y3) compute and print the corresponding area, where A= DIST12, B=DIST13, and C=DIST23.