

ENGR–UH 1000 | Lab 0 Report

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1 Problem Identification and Statement

Computing the distance between two given points in a Cartesian plane, given the Cartesian coordinates of the two points.

2 Gathering of Information and Input/Output Description

3 Test Cases and Algorithm Design

- Get input $x1$ from user
- Assign $x1$ to variable $x1$
- Get input $y1$ from user
- Assign $y1$ to variable $y1$
- Get input $x2$ from user
- Assign $x2$ to variable $x2$
- Get input $y2$ from user
- Assign $y2$ to variable $y2$
- Assign $v(t) = v_0 + \frac{1}{2}at^2$ to distance
- Print Distance

4 Implementation

5 Software Testing and Verification

% Pandoc math demos

$$a^2 + b^2 = c^2$$

$$v(t) = v_0 + \frac{1}{2}at^2$$

$$\gamma = \frac{1}{\sqrt{1-v^2/c^2}}$$

$$\exists x \forall y (Rxy \equiv Ryx)$$

$$p \wedge q \models p$$

$$\Box \diamond p \equiv \diamond p$$

$$\int_0^1 x dx = [\frac{1}{2}x^2]_0^1 = \frac{1}{2}$$

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!} = \lim_{n \rightarrow \infty} (1 + x/n)^n$$

```
1  /*-----*/
2  /* Name: Pi, Student Number: N13394469 */
3  /* Date: Sep 8, 2020. */
4  /* Program: distance.cpp */
5  /* Description: This program computes the distance */
6  /* between two points. */
7  /*-----*/
8  #include <iostream>
9  #include <cmath>
10 using namespace std;
11 int main()
12 {
13     /* Declare and initialize the variables */
14     double x1 = -1, y1 = -3, x2 = 4, y2 = 6;
15     double length1, length2, distance;
16
17     /* Compute the sides of a right triangle */
18     length1 = x2 - x1;
19     length2 = y2 - y1;
20
21     /* Compute the distance between the two points. */
22     distance = sqrt(length1*length1 + length2*length2);
23
24     /* Print the distance */
25     cout << "The distance between the two points is " << distance << endl;
26     return (0);
27 }
28 /*-----End-----*/
```