# PS08 - Answer Sheet

|  |  |
| --- | --- |
| **Assignment:** | PS ## |
| **Name:** | <your name>, <your Purdue login> |
| **Team-ID** | ###-## |
| **Contributor(s):** | <name> , <Purdue login> [repeat for each] |

## Taylor Series for

Paired

### Paired Partner

Each member of the pair will submit their own answer sheet. List your paired partner here.

|  |  |
| --- | --- |
| Flowchart Partner: | <partner name>, <partner Purdue login> |

### Test Cases

Fill out the table with test case information.

* The *Test Case Description* is an English description of what path is being tested.
* The *Test Case Values* are the values you will use to test the path in the structure or flowchart.
* The *Flowchart Output* is an English description of the flowchart’s result when the test case values go through the structure; it should not be code or MATLAB generated results.
* Add as many rows as necessary to test all possible flowchart paths.
* An example test case is included.

Note: you will also use these test cases to test your completed code.

|  |  |  |
| --- | --- | --- |
| **Test Case Description**  **in English** | **Test Case Values**  **(x, tolerance)** | **Flowchart Output**  **in English** |
| Valid inputs for x and for the tolerance | (0.5,0.05) | * number of terms in series * value of (x) approximation * absolute difference between cos(x) approximation and MATLAB’s cos(x) |
|  |  |  |

### Variable Tracking Table – by hand

Complete the necessary parts of this table for input arguments (2.5, 0.001). Add rows as necessary.

|  |  |  |  |
| --- | --- | --- | --- |
|  | nth term value | cos(*x*) approximation | Number of Terms |
| Initialization |  |  |  |
| Iteration 1 |  |  |  |
|  |  |  |  |

## Infinite Fin Model

Individual

### Flowchart for PS08\_fin\_length

*<insert flowchart here>*

### Variable Tracking Table – by hand

Complete the necessary parts of this table for the following input arguments:

Rod diameter: 0.005 m

Heat source temperature: 373 K

Ambient air temperature: 298 K

Thermal conductivity of stainless steel: 16 W/(m\*K)

Add additional rows as necessary.

|  |  |  |
| --- | --- | --- |
|  | **Distance from heat source (m)** | **Temperature at distance (K), rounded to nearest whole number** |
| Initialization |  |  |
| Iteration 1 |  |  |
|  |  |  |

## Approximation of

Paired

### Paired Partner

Each member of the pair will submit their own answer sheet. List your paired partner here.

|  |  |
| --- | --- |
| Flowchart Partner: | <partner name>, <partner Purdue login> |

### Test Cases

Fill out the table with test case information.

* The *Test Case Description* is an English description of what path is being tested.
* The *Test Case Values* are the values you will use to test the path in the structure or flowchart.
* The *Flowchart Output* is an English description of the flowchart’s result when the test case values go through the structure; it should not be code or MATLAB generated results.
* Add as many rows as necessary to test all possible flowchart paths.
* An example test case is included.

Note: you will also use these test cases to test your completed code

|  |  |  |
| --- | --- | --- |
| **Test Case Description**  **in English** | **Test Case Values**  **(n)** | **Flowchart Output**  **in English** |
| Valid input for n: positive integer | 6 | * approximation, * Absolute difference between MATLAB log(3) and approximation |
|  |  |  |

### Variable Tracking Table – by hand

Complete the necessary parts of this table for input argument n = 3. Leave blank any unneeded cells.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Index** | **nth term in summation** | **Summation** |
| Initialization |  |  |  |
| Iteration 1 |  |  |  |
| Iteration 2 |  |  |  |
| Iteration 3 |  |  |  |
| Iteration 4 |  |  |  |
| Iteration 5 |  |  |  |
| Final Approximation of | | |  |