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| --- | --- | --- | --- | --- | --- |
| Test Number | Test Case | Description | Expected Results | Actual Results | Extra Notes |
| 001 | Properly Identifies A or M or invalid input | Validates user input for 'A', 'M', or invalid input | Output: Confirmation of users input | Confirmation of user input (e.g., "Input accepted: A") | |  | | --- | | Output should confirm the validity of the input and prompt the user accordingly. |  |  | | --- | |  | |
| 002 | Properly Identifies D or C or invalid input | |  | | --- | | Validates user input for 'D', 'C', or invalid input |  |  | | --- | |  | | Asks the user for data regarding chosen vector | |  | | --- | | Asks the user for data regarding the chosen vector |  |  | | --- | |  | | |  | | --- | | Should handle invalid input gracefully and prompt the user for correct data. |  |  | | --- | |  | |
| 003 | Correctly Stores polar vectors | Stores polar vector inputs from the user | |  | | --- | | Stores polar vector values correctly (magnitude and angle), enabling future calculations |  |  | | --- | |  | | Polar vector stored correctly | |  | | --- | | Stored vector should be accessible for calculations like addition and conversion. |  |  | | --- | |  | |
| 004 | Correctly Stores rectangular vectors | |  | | --- | | Stores rectangular vector inputs from the user |  |  | | --- | |  | | Properly stores input vector, enabling a correct output | |  | | --- | | Rectangular vector stored correctly |  |  | | --- | |  | | |  | | --- | | Should store the vector accurately in memory for further operations. |  |  | | --- | |  | |
| 005 | Can convert polar input to rectangular | |  | | --- | | Converts polar vector to rectangular coordinates |  |  | | --- | |  | | Performs conversion allowing a calculation to occur. | |  | | --- | | Correct conversion occurs |  |  | | --- | |  | | |  | | --- | | Should allow correct calculation of rectangular vector after conversion. |  |  | | --- | |  | |
| 006 | Can convert rectangular input to polar | |  | | --- | | Converts rectangular vector to polar coordinates |  |  | | --- | |  | | Performs conversion allowing a calculation to occur. | |  | | --- | | Correct conversion occurs |  |  | | --- | |  | | |  | | --- | | Ensure accurate conversion for both x and y components. |  |  | | --- | |  | |
| 007 | Can add together two stored vectors | |  | | --- | | Adds two stored vectors (either polar or rectangular) |  |  | | --- | |  | | |  | | --- | | Correct vector sum is outputted (either rectangular or polar, depending on input format) |  |  | | --- | |  | | Correct vector sum output | |  | | --- | | Ensure that vectors are stored correctly before performing the addition. |  |  | | --- | |  | |
| 008 | Can perform dot product on two vectors | Calculates dot product of two stored vectors | |  | | --- | | Correct scalar result from dot product (a·b = x₁x₂ + y₁y₂ for 2D vectors) |  |  | | --- | |  | | |  | | --- | | Correct scalar result) |  |  | | --- | |  | | |  | | --- | | Should perform calculations for both polar and rectangular vectors. |  |  | | --- | |  | |
| 009 | Can perform cross product on two vectors | |  | | --- | | Calculates cross product of two stored vectors |  |  | | --- | |  | | Outputs the correct vector as a result of the operation | |  | | --- | | Correct vector result |  |  | | --- | |  | | |  | | --- | | Ensure that cross product calculation is performed correctly for 2D vectors. |  |  | | --- | |  | |
| 010 | Correctly outputs a vector solution | |  | | --- | | Outputs the solution of a vector operation (addition, dot product, etc.) |  |  | | --- | |  | | Outputs valid vector in correspondence with previous parameters. | |  | | --- | | Valid vector output |  |  | | --- | |  | | Ensure the output format is consistent with expected results |