### Homework 7\_1

**Problem 1:**

% Define the coordinates of the points

x = [0, 4, 4, 6, 10];

y = [0, 8, -5, 0, 0];

% Calculate the integral using trapezoidal rule

integral\_value = trapz(x, y);

% Display the integral value

disp(['Integral Value: ', num2str(integral\_value)]);

% Calculate the cumulative integral values

cumulative\_integral = cumtrapz(x, y);

1. **11**

**Problem 2:**

% Define the coordinates of the points

x = [0, 4, 8, 12];

y = [5, -5, 5, -5];

% Calculate the integral using trapezoidal rule

integral\_value = trapz(x, y);

% Display the integral value

disp(['Integral Value: ', num2str(integral\_value)]);

% Calculate the cumulative integral values

cumulative\_integral = cumtrapz(x, y);

1. **0**

**Problem 3:**

1. **= 11529/32 = 360.28**

**Problem 4:**

1. **= 3.226**

**Problem 5:**

1. **= -11.383**

**Problem 6:**

1. **= 0.50753**

**Problem 7:**

1. **= 5.7275 m/s**
2. **= 47.718 m**