**Tutorial on Arduino Programming**

**Problem-1:**

float fahrenheitToCelsius(float fahrenheit) {

  return (fahrenheit - 32.0) \* 5.0 / 9.0;

}

float fahrenheitToKelvin(float fahrenheit) {

  return (fahrenheit + 459.67) \* 5.0 / 9.0;

}

float fahrenheitToRankine(float fahrenheit) {

  return fahrenheit + 459.67;

}

void setup() {

  Serial.begin(9600);

}

void loop() {

  float fahrenheit = 75.0;

  float celsius = fahrenheitToCelsius(fahrenheit);//23.889

  float kelvin = fahrenheitToKelvin(fahrenheit);//297.0389

  float rankine = fahrenheitToRankine(fahrenheit);//534.67

  Serial.print("Temperature in Fahrenheit: ");

  Serial.println(fahrenheit);//75.0

  Serial.print("Temperature in Celsius: ");

  Serial.println(celsius);//23.889

  Serial.print("Temperature in Kelvin: ");

  Serial.println(kelvin);//297.0389

  Serial.print("Temperature in Rankine: ");

  Serial.println(rankine);//534.67

  float result = (fahrenheit + celsius - kelvin \* rankine) / 2.0 + constrain(100, 0, 50); // Arbitrary expression

//-79309.45

  Serial.print("Result of complex operation: ");

  Serial.println(result);//-79309.45

}

**Problem-2: ceil(X/Y);**

A warehouse has "X" boxes to store, with each shelf capable of holding a maximum of "Y" boxes. How many shelves will be required to store the boxes? Assume the values of X and Y will be read from the serial monitor.

1. Write an Arduino code snippet to calculate the number of shelves required based on the input values of "X" and "Y".
2. Explain the process used in your code to determine the number of shelves required.