```
function [T] = tempCal(T1, h, h1, Th)
```

FUNCTION DESCRIPTION: This function is designed to calculate the temperature in a specific altitude, such as: tropopause, stratopause, mesopause, etc.

This function is from HW #1

OUTPUT VARIABLES:

T: Vectors of the temperatures at an altitude h (K)

INPUT VARIABLES:

T1: Average temperature at initial level [K]

h: Vectors of the specific altitude [m or ft]

h1: Vectors of the average surface level or initial surface level [m or ft]

Th: Vectors of temperature lapse rates [K/m or K/ft]

MAIN (CODE)

```
T = zeros(size(h)); % Preallocation of temperature vector

for i = 1:1:length(h)
    if h(i) <= h1(2)
        T(i) = T1(1) + Th(1)*(h(i) - h1(1));
    elseif (h1(2) < h(i)) && (h(i) <= h1(3))
        T(i) = T1(2);
    elseif (h1(3) < h(i)) && (h(i) <= h1(4))
        T(i) = T1(2) + Th(2)*(h(i) - h1(3));
    elseif (h1(4) < h(i)) && (h(i) <= h1(5))
        T(i) = T1(3);
    elseif (h1(5) < h(i)) && (h(i) <= h1(6))
        T(i) = T1(3) + Th(3)*(h(i) - h1(5));
    elseif (h1(6) < h(i)) && (h(i) <= h1(7))
        T(i) = T1(4);
    elseif (h1(7) < h(i)) && (h(i) <= h1(8))
        T(i) = T1(4) + Th(4)*(h(i) - h1(7));
    end
end
```