Waled Salem
CSE 460 HW3
SCORE: 60/60

1.
Taking the four previous run times into consideration, the prediction is:
(((40+20/2 +40)/2 + 15)/2 = 25

(40 + 15)/2 = 27.5

2.

1. Q=infinity
2. Q>T
3. S<Q<T
4. Q=S
5. Q nearly 0

a) S = 0-> CPU efficiency = T /T = 100%
b) S = 0 -> CPU efficiency = T / T = 100%
c) CPU Efficiency = T / ((ST/Q) + T) = (varies from 100% down to 50% depending on how much less Q is than T)
d) S = Q -> CPU efficiency = T / ((QT/Q) + T) = T / 2T = 50%
e) Q ~= 0 -> CPU efficiency = T / ((ST/Q) +T) = T / ~infinity = ~0%

3.
Code:

```cpp
#include <stdio.h>
#include <stdlib.h>
#include <SDL/SDL.h>
#include <SDL/SDL_thread.h>
#include <iostream>

int matA[3][2] = { {1,2}, {5,8}, {7, 12} };
int matB[2][3] = { {3, 14, 0}, {6, 0, 15} };
int matC[3][3] = { {0, 0, 0}, {0, 0, 0}, {0, 0, 0} };

using namespace std;

class matrix {
public:
    void printA(int m[][2]);
    void printB(int m[][3]);
    void printC(int m[][3]);

private:
    int row;
    int col;
    int product;
};

int dotProduct(void *data) {
    int row;
    int col;
    int product;

    char *threadname;
    threadname = (char *) data;

    cout << "This is" << threadname << endl;

    for(row = 0; row < 3; row++)
        for(col = 0; col < 3; col++)
            for(product = 0; product < 2; product++)
                matC[row][col] += matA[row][product] * matB[product][col];

    return 0;
}

void matrix::printA(int m[][2]) {
    cout << "MatrixA: \n";

    for(row = 0; row < 3; row++){
        for(col = 0; col < 2; col++)
            cout << matA[row][col] << " ";

        cout << endl;
    }
}
```

Output:

4.
Code:

Output:

I believe i earned a **SCORE OF 60/60** on this homework since i completed every task assigned completely.