CSE 6331 Homework 2

Due: Wednesday, January 24

[Total 100 points] Give the asymptotic running time of each function in Θ notation. Justify your answer (show your work of analysis). 20 points for each question.

1.

```
Func6(n)
1 s ← 0;
2 for i ← 6 to n^2 do
3 |   j ← 3;
4 |   while (j < 2i^2) do
5 |   |   s ← s + i − j;
6 |   |   j ← (1.5) ∗ j ;
7 |   end
8 end
9 return (s);
```

2.

```
Func7(n)
1 s ← 0;
2 i ← n^3;
3 while (i ≥ 1) do
4 |   for j ← 1 to i do
5 |   |   s ← s + i − j;
6 |   end
7 |   i ← i − √n;
8 end
9 return (s);
```

3.

```
Func8(n)
1  s ← 0;
2  i ← n;
3  while (i < 4n^3) do
4  |   j ← n^3;
5  |   while (j ≥ 10) do
6  |   |   s ← s + i − j;
7  |   |   j ← ⌊j/4⌋;
8  |   end
9  |   i ← 2 ∗ i;
10 end
11 return (s);
```

4.

```
Func9(n)
1  s ← 0;
2  i ← n^2;
3  while (i ≥ 1) do
4  |  j ← 1;
5  |  while (j ≤ i) do
6  |  |  s ← s + i − j;
7  |  |  j ← j ∗ 2;
8  |  end
9  |  i ← i − 1;
10 end
11 return (s);
```

5.

```
Func10(n)
1  s ← 0;
2  i ←1;
3  while (i < 7n) do
4  |  j ← n^2;
5  |  while (j > 6) do
6  |  |  s ← s + i − j;
7  |  |  j ← j − i ;
8  |  end
9  |  i ← 5 ∗ i ;
10 end
11 return (s);
```