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Problem 1

Points:

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non-class material: https://www.cpp.edu/ ftang/courses/CS240/lectures/analysis.htm https://www.geeksforgeeks.org/differen
between-big-oh-big-omega-and-big-theta/

Problem 2

Points:

1. $f = \Omega(g)$
2. $f = \Omega(g)$
3. $f = O(g)$
4. $f = \Omega(g)$
5. $f = \Theta(g)$
6. $f = \Omega(g)$
7. $f = \Omega(g)$
8. $f = O(g)$
9. $f = \Omega(g)$
10. $f = \Theta(g)$
11. $f = O(g)$
12. $f = \Omega(g)$
13. $f = O(g)$
14. $f = \Omega(g)$
15. $f = O(g)$

Problem 3

Points:

1. true

if $f(n) = log(n)$, $g(n) = n^2$, $h(n) = 2^n$

then $f = O(h)$

2. false

if $f(n) = n$, $g(n) = 2n$,

then $2^{f(n)} = 2n$, while $\Theta(2^{g(n)}) = 4^n$.

3. false

4. true

Problem 4

Points:

1. for i: 1 to n do

it is n steps

j: = i;

$n * (n-1)/2$

and run time is $\Theta(n^2)$

2.

simmiar and still $\Theta(n^2)$

3.

another loop and be $\Theta(n^3)$

4.

maybe still $\Theta(n^2)$