1. Please fill in each box with T/F

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| --- | --- | --- | --- | --- | --- | --- |
| F(n) | G(n) | O | o | Ω | ω | Ɵ |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

1. Prove or disprove each of the following statements.
   1. f(n) = Ω(g(n)) implies g(n) = Ω (f (n))
   2. f(n) =O(g(n)) implies g(n) = O (f (n))
   3. f(n) = Ω(g(n)) implies g(n) = O (f (n))
   4. f(n) + g(n) = Ɵ (max (f (n), g(n)))
   5. f(n) + g(n) = Ɵ (min (f (n), g(n)))
   6. f(n) + g(n) = Ɵ (sum (f (n), g(n)) )
   7. f(n) = Ɵ (f(n/2))
   8. f(n) = Ɵ ((f(n))2)
   9. f(n) = Ω(f(n))
   10. f(n) = O(f(n))
   11. f(n) + Ω(f(n)) = Ɵ(f(n))
   12. f(n) + o(f(n)) = Ɵ(f(n))