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COM 2545
Drill: More Asymptotic Notation and Order of Growth

2. Comparing Relative Order-Of-Growth Of Two Functions
    1) 2
    2) 2
    3) 1
    4) 2
    5) 2
    6) 3
    7) 2
    8) 2
    9) 1
    10) 3
3. Asymptotics
    1) No, because $O(n^2)$ means that the algorithm performs n^2 at worst, but it can perform better, such as n.
    2) No, because $O(n^2)$ means that the algorithm performs n^2 at worst, so on either some or all values, it may perform n^2, which is worse than n.
    3) No, because despite the worst case being n^2, there may be some inputs that have better performance, such as n.
    4) Yes, because $\theta(n^2)$ means that there is definitively a worst case where the performance is n^2 for at least some inputs.
    5) Yes, because $f(n) = O(n^2)$ and $f(n^2) = O(f(n))$, since in the worst case, f(n) performs at n^2 (according to the rules of big O notation).