Subject: Specific Exam Review Questions  
Posted by sestephens on Mon, 29 Aug 2016 22:16:47 GMT  
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No. 28: T or F: If \( f = o(g) \), then algorithm \( f \) always runs faster than \( g \), in all cases.

I think this is true, since little omicron means strictly faster than. However, I'm not sure if the notation specifically means only for worst case and large input size (so NOT in all cases). Can anyone verify this?

Subject: Re: Specific Exam Review Questions  
Posted by jjlukas on Tue, 30 Aug 2016 01:28:38 GMT  
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When you use notation, you set a bound of \( N(o) \) which \( N \geq N(o) \) for which it is true. So no, not all cases, but once a \( N(o) \) is chosen, then for all \( N \) such that \( N \geq N(o) \) is true then \( f = O(g) \). Or, in your case, \( N > N(o) \rightarrow f = o(g) \)

Subject: Re: Specific Exam Review Questions  
Posted by lusth on Tue, 30 Aug 2016 10:55:53 GMT  
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Still, only true for inputs that cause worst case behavior. mergesort = \( o(\text{insertion sort}) \), but insertion sort can run faster than mergesort for arbitrarily large input sizes for inputs that do not cause worst case behavior.