Warm-Ups 06

This is a preview of the published version of the quiz

Started: Mar 4 at 12:57pm

Quiz Instructions

Question 1 2 pts

Which of the following are true about little-o and big-O?

- [ ] If $f \in o(g)$, then $f \in O(g)$
- [ ] If $f \in o(g)$, then $g \notin O(f)$
- [ ] When $f \sim g$ and $f \notin o(g)$, $f \in O(g)$
- [ ] When $f \nsim g$ and $f \in o(g)$, $f \in O(g)$
- [ ] If $f \in O(g)$, then $f \in o(g)$

Question 2 2 pts

Which of these relationships apply for $f(n) = \log_3(n)$ and $g(n) = \log_7(n)$?

- [ ] $f \sim g$
- [ ] $f \in o(g)$
- [ ] $f \in O(g)$

- [ ] $f \in \Theta(g)$

Question 3 2 pts

If $f \in \Theta(g)$, then which of the following MUST be true?

- [ ] $g \in \Theta(f)$
- [ ] $f \in o(g)$
- [ ] $g \in o(f)$
- [ ] $f \in O(g)$
- [ ] $g \in O(f)$
- [ ] $f \sim g$

Question 4 2 pts

If $f \in \Theta(g)$, then which of the following CAN be true?

- [ ] $g \in \Theta(f)$
- [ ] $f \in o(g)$
- [ ] $g \in o(f)$
- [ ] $f \in O(g)$
- [ ] $g \in O(f)$

$f \sim g$

Question 5 2 pts

Consider the quantity $\frac{(2n)!}{2^{2n}(n!)^2}$. This will come up later in the course (it is the probability that in flips of a fair coin, exactly will be Heads). Which of the following formulae is asymptotically equal to this? As a reminder, Stirling's Formula says $n! \sim \sqrt{2\pi n}\left(\frac{n}{e}\right)^n$.

$\frac{1}{\sqrt{2\pi n}}$

$\frac{1}{\sqrt{\pi n}}$

$\sqrt{\frac{2}{\pi n}}$

$\sqrt{2\pi n}$

$2^n\sqrt{2\pi n}$

Quiz saved at 12:57pm Submit Quiz

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