

QUIZ NUMBER FOUR FOR MTH 213

AYMAN BADAWI

Name _____, Id. Num. _____, Score $\frac{\quad}{10}$

QUESTION 1. (write down T or F)

- (1) $\frac{x+1}{x^2+3}$ is an $O(1)$
- (2) there is a prime number between 3010 and 6020
- (3) If $a \in \mathbb{Z}^+$, then every prime divisor of a is $\leq \sqrt{a}$.
- (4) $(n + \log(n!))$ is an $O(n^2)$
- (5) $(3^{-x} + x)$ is an $O(x)$.
- (6) If $f(x)$ is an $O(100k(x))$, then $f(x)$ is an $O(k(x))$.
- (7) The number $300100! + 5309860300!$ is a prime number
- (8) $100! + p$ is not a prime number for every prime number p , where $2 \leq p < 99$.
- (9) If p is a prime number and $p \mid (a + b)$ where $a, b \in \mathbb{Z}$, then either $p \mid a$ or $p \mid b$.
- (10) If $n \in \mathbb{Z}^+$ and n has a prime divisor p equals to \sqrt{n} , then $n = p^2$.

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