CIS 3223 Short Quiz 3 | **Name:** Soln s

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1 Answer the following (circle answer).

(a) Evaluate $\phi(200)$ — 80

$= \varphi(8 \cdot 25)$

$= \varphi(8)\varphi(25)$

$= 4 \cdot 20$

$= 80$

(b) The runtime for the dfs algorithm on a graph $G = (V, E)$ is

$O(|V|)$ $O(|V| + \log|E|)$ (circled) $O(|V| + |E|))$ $O(|V||E|)$ $O(|V|^2)$

psq

(c) For integers a, b, c, and d, if $a + bc + d = 0$, then $gcd(a, b) = gcd(c, d)$ — True (circled) False

$a = 2 \quad b = 1 \quad gcd(a, b) = 1$

$c = 2 \quad d = -4 \quad gcd(c, d) = 2$

$a + bc + d = 2 + 2 - 4 = 0$

(d) $\forall n \in \mathbb{Z}^+ \exists s \in \mathbb{Z}(n \leq 5^s < 5n)$ — (circled) True False

$n = (d_{s-1} d_{s-2} \ldots d_1 d_0)_5 \quad , \quad d_{s-1} \neq 0$