CS 173, Fall 18 Examlet 1, Part B

Name: _____

NetID: _____ **Lecture: B**

Discussion: Friday 11 12 1 2 3 4

1. (5 points) Simplify, showing your work.

   $\log_3(45x) - \log_3(5x) =$

   Solution: $\log_3(45x) - \log_3(5x) = \log_3 \frac{45x}{5x} = \log_3 9 = 2$

2. (10 points) Check the (single) box that best characterizes each item.

   The interval (a, b) contains b. true ☐ false ☑

   For any real number x,
   if $x \geq 10$, then $x > 10$. true ☐ false ☑

   $3^{\lfloor -1.5 \rfloor} =$ -3 ☐ $\frac{1}{9}$ ☑ $\frac{1}{3\sqrt{3}}$ ☐ $\frac{1}{3}$ ☐

   $\log_3 2 \leq \log_2 3$ true ☑ false ☐

   $\neg(p \wedge \neg q) \equiv \neg p \wedge q$ true ☐ false ☑

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1. (5 points) Suppose $\log_k x = 8$. Then $\log_k(x\sqrt{x}) =$
   Solution: $\log_k(x\sqrt{x}) = \log_k(x^{3/2}) = \frac{3}{2}\log_k(x) = \frac{3}{2} \cdot 8 = 12$

2. (10 points) Check the (single) box that best characterizes each item.

   The interval (a, b) contains b. true ☐ false ☑

   If 7 is even, then 7 is a perfect square. true ☑ false ☐ undefined ☐

   $\exists n \in \mathbb{R}$, such that $n^2 = 10$. true ☑ false ☐ undefined ☐

   $\log_7 5 < 1$ true ☑ false ☐

   For any real number x, $2\lceil x \rceil \leq \lceil 2x \rceil$ true ☐ false ☑